DOCUMENT RESUME

ED 373 992 SE 054 761

AUTHOR Wilkinson, R. Keith
TITLE Characteristics of Doctoral Scientists and Engineers in the United States: 1991. Surveys of Science Resource Series.
INSTITUTION National Science Foundation, Washington, D.C. Div. of Science Resources Studies.
REPORT NO NSF-94-307
PUB DATE 94
NOTE 98p.; For the 1989 survey, see ED 342 669.
AVAILABLE FROM Division of Science Resources Studies, National Science Foundation, Arlington, VA 22230 (single copies, free).
PUB TYPE Guides - Non-Classroom Use (055) -- Tests/Evaluation Instruments (160)

EDRS PRICE MF01/PC04 Plus Postage.
DESCRIPTORS *Doctoral Degrees; *Engineers; Higher Education; *Occupational Surveys; *Science Education; *Scientists

ABSTRACT

This report presents data on the demographic and employment characteristics of doctoral scientists and engineers in the United States. This 1991 survey is different from prior surveys in this series in that it represents an interest to accommodate an age-based cohort policy in retirement patterns and to make the sample frame compatible with other National Science Foundation surveys of science and engineering personnel. In addition to general notes, this report includes detailed statistical tables, technical notes, and the survey instrument. The statistical tables unit includes employment and salary detail tables. The technical notes section contains information on survey methodology, coverage, concepts, definitions, and sampling errors. (ZWH)

****
* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *
****

ED 373 992

Characteristics of Doctoral Scientists and Engineers in the United States: 1991

U.S. DEPARTMENT OF EDUCATION
Office of Educational Research and Improvement
EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)
☒ This document has been reproduced as received from the person or organization originating it
☐ Minor changes have been made to improve reproduction quality
• Points of view or opinions stated in this document do not necessarily represent official OERI position or policy

SE0547U1

Surveys of Science Resources Series
National Science Foundation

Detailed Statistical Tables

BEST COPY AVAILABLE

NSF 94-307

Characteristics of Doctoral Scientists and Engineers in the United States: 1991

Project Officer: R. Keith Wilkinson

Surveys of Science Resources Series
National Science Foundation

Detailed Statistical Tables
NSF 94-307

Suggested Citation

National Science Foundation, *Characteristics of Doctoral Scientists and Engineers in the United States: 1991*, NSF)07 (Arlington, VA, 1994).

Availability of Publications

Single copies are available free of charge from the Division of Science Resources Studies, National Science Foundation, Arlington, VA 22230. If you are a user of electronic mail and have access to Internet, you may order publications electronically. Internet users should send requests to pubs@nsf.gov. In your request, include the NSF publication number and title, number of copies, your name, and a complete mailing address. Printed publications may also be ordered by fax (703-644-4278). Publications should be received within 3 weeks after receipt of request. See page iv for availability on the Science and Technology Information System (STIS).

Telephonic Device for the Deaf
(703) 306-0090

Contributors

Data collection, preparation, and tabulations were performed by Mathematica Policy Research for the National Science Foundation. The Project Officer for this report was R. Keith Wilkinson.

ACKNOWLEDGMENTS

This publication was developed by R. Keith Wilkinson, Project Officer, Science and Engineering Personnel Program (PER) of the National Science Foundation's Division of Science Resources Studies (SRS). Technical assistance for this project was provided by Linda Hardy and Carolyn Shettle, both of SRS, and Geraldine Mooney of Mathematica Policy Research under contract No. SRS-90-14942. The project was developed under the supervision of Carlos Kruytbosch, Program Director, PER, with guidance and review provided by the SRS Director, Kenneth M. Brown.

I am grateful to Simone Keith for providing statistical support for the production of this report and to Susan Mitchell, Prudy Brown, and Daniel Pasquini from the National Research Council for having conducted the survey under contract No. SRS-93-14268.

STIS

The Science & Technology Information System (STIS) at the National Science Foundation

What is STIS?

STIS is an electronic dissemination system that provides fast, easy access to National Science Foundation (NSF) publications. There is no cost to you except for possible long-distance phone charges. The service is available 24 hours a day, except for brief weekly maintenance periods.

What Publications are Available?

Publications currently available include:

- The *NSF Bulletin*
- Program announcements and "Dear Colleague" letters
- General publications and reports
- Press releases, Other NSF news items
- NSF organizational and alphabetical phone directories
- NSF vacancy announcements
- Award abstracts (1989-now)

Our goal is for all printed publications to be available electronically.

Access Methods

There are many ways to access STIS. Choose the method that meets your needs and the communication facilities you have available.

Electronic Documents Via E-Mail. If you have access to Internet e-mail, you can send a specially formatted message, and the document you request will be automatically returned to you via e-mail.

Anonymous FTP. Internet users who are familiar with this file transfer method can quickly and easily transfer STIS documents to their local system for browsing and printing.

On-Line STIS. If you have a VT100 emulator and an Internet connection or a modem, you can log on to the on-line system. The on-line system features full-text search and retrieval software to help you locate the documents and award abstracts that are of interest to you. Once you locate a document, you can browse through it on-line or download it using the Kermit protocol or request that it be mailed to you.

Direct E-Mail. You can request that STIS keep you informed, via e-mail, of all new documents on STIS. You can elect to get either a summary or the full text of new documents.

Internet Gopher and WAIS. If your campus has access to these Internet information resources, you can use your local client software to search and download NSF publications. If you have the capability, it is the easiest way to access STIS.

Getting Started with Documents Via E-Mail

Send a message to the Internet address **stisserv@nsf.gov**. The *text* of the message should be as follows (the Subject line is ignored):

get index

You will receive a list of all the documents on STIS and instructions for retrieving them. Please note that all requests for electronic documents should be sent to **stisserv**, as shown above. Requests for printed publications should be sent to **pubs@nsf.gov.**

Getting Started with Anonymous FTP

FTP to *stis.nsf.gov*. Enter *anonymous* for the username, and your E-mail address for the password. Retrieve the file "index". This contains a list of the files available on STIS and additional instructions.

Getting Started with The On-Line System

If you are on the Internet: *telnet stis.nsf.gov*. At the login prompt, enter *public*.

If you are dialing in with a modem: Choose 1200, 2400, or 9600 baud, 7-E-1. Dial (703) 306-0212 or (703) 306-0213

When connected, press *Enter*. At the login prompt, enter *public*.

Getting Started with Direct E-Mail

Send an E-mail message to the Internet address **stisserv@nsf.gov**. Put the following in the text:

get stisdirm

You will receive instructions for this service.

Getting Started with Gopher and WAIS

The NSF Gopher server is on port 70 of **stis.nsf.gov.** The WAIS server is also on **stis.nsf.gov.** You can get the ".src" file from the "Directory of Servers" at **quake.think.com.** For further information contact your local computer support organization.

For Additional Assistance Contact:

E-mail: *stis@nsf.gov* (Internet)

Phone: (703) 306-0214 (voice mail)

TDD: (703) 306-0090

NSF 94-4
(Replaces NSF 91-10)

CONTENTS

Section *Page*

I. General Notes 1
II. Detailed Statistical Tables 3

Appendixes
A. Technical Notes 63
B. Survey Questionnaire 81

SECTION I. GENERAL NOTES

This report presents data on the demographic and employment characteristics of the Nation's doctoral scientists and engineers. The data were developed as part of the Longitudinal Doctorate Project.[1] Current information on the supply and utilization of doctoral personnel in science and engineering (S&E) reflects the results of the 1991 Survey of Doctorate Recipients (SDR), the 10th in a biennial series. The population of the 1991 survey includes persons under the age of 76 who hold doctorates from U.S. institutions in science or engineering. This population differs from prior surveys in the series, which encompassed a 42-year period of Ph.D. cohorts. The change to an age-based cohort in 1991 was made to accommodate policy interest in retirement patterns and to make the sample frame compatible with other National Science Foundation (NSF) surveys of science and engineering personnel.

NSF also introduced a number of other improvements into the 1991 SDR in an effort to enhance the quality and utility of the SDR data.[2] These improvements may affect comparability with SDR data published for prior survey years, however. One of the factors contributing to the data incomparability was the change in the definition of doctoral scientists and engineers. Prior to 1991 the NSF defined scientists and engineers as individuals with (1) U.S.-earned doctorates in S&E; (2) U.S.-earned doctorates in humanities, education, or professional fields who were employed in S&E; or (3) foreign-earned doctorates who were working in S&E in the United States. In 1991 only individuals with U.S.-earned doctorates in S&E were classified as scientists and engineers, because over time the coverage of individuals in categories 2 and 3 had become less and less complete.

Another 1991 change affecting comparability was the introduction of more intensive followup of mail nonrespondents in order to raise the survey response rate. This followup—in the form of telephone interviewing—was financed through a reduction in the sample size of about 50 percent from 1989. However, because a higher response rate was achieved in 1991—87 percent compared with 55 percent in 1989—the effective sample size was reduced by only 22 percent.

Because of these changes, only data from the 1991 survey are included in this report. Information is provided on the number of employed scientists and engineers by demographic characteristics such as citizenship, place of birth, and field of degree and by employment-related characteristics such as occupation, sector of employment, median salary, and various labor force rates. Of further note, some tables in this report provide estimates for doctoral scientists and engineers employed in 4-year colleges and universities.

In addition to these general notes, this report includes detailed statistical tables, technical notes, and the survey instrument. The detailed statistical tables unit includes employment and salary detail tables. The "Technical Notes" section contains information on survey methodology, coverage, concepts, definitions, and sampling errors.

Request for additional information should be directed to—

R. Keith Wilkinson, Science and Engineering Personnel Program
Division of Science Resources Studies
National Science Foundation
4201 Wilson Boulevard, Suite 965
Arlington, VA 22230

Telephone: (703) 306-1776, ext. 6921
E-mail: rwilkins@nsf.gov

[1] The Longitudinal Doctorate Project consists of the Survey of Doctorate Recipients, a biennial survey conducted since 1973, and the Doctorate Work History File, a longitudinal file of data from the surveys.

[2] See app. A, "Technical Notes," pp. 63-67, for additional information.

List of Tables

Table		*Page*
1.	Doctoral scientists and engineers, by field of doctorate and employment status: 1991	7
2.	Selected employment characteristics of doctoral scientists and engineers, by field of doctorate: 1991	8
3.	Median annual salaries of employed doctoral scientists and engineers, by field of doctorate and years of professional work experience: 1991	9
4.	Employed doctoral scientists and engineers, by geographic location and broad field of doctorate: 1991	10
5.	Median annual salaries of employed doctoral scientists and engineers, by geographic location and broad field of doctorate: 1991	12
6.	Doctoral scientists and engineers employed in universities and 4-year colleges, by broad field of doctorate, sex, and academic rank: 1991	14
7.	Doctoral scientists and engineers employed in universities and 4-year colleges, by broad field of doctorate, sex, and tenure status: 1991	15
	Employed Doctoral Scientists and Engineers...	
8.	...by field of doctorate and citizenship status: 1991	16
9.	...by field of doctorate and employment sector: 1991	17
10.	...by field of doctorate and primary work activity: 1991	18
11.	...by field of doctorate, race/ethnicity, and sex: 1991	19
12.	...by demographic characteristics and broad field of doctorate: 1991	21
13.	...by demographic characteristics and citizenship status: 1991	23
14.	...by demographic characteristics and employment sector: 1991	26
15.	...by demographic characteristics and primary work activity: 1991	27
16.	...by demographic characteristics, race/ethnicity, and sex: 1991	29

Table *Page*

17. ...by employment-related characteristics and citizenship status: 1991 32

18. ...by employment-related characteristics, race/ethnicity, and sex: 1991 33

19. ...by employment-related characteristics and employment sector: 1991 35

20. ...by employment-related characteristics and primary work activity: 1991 37

21. ...by employment-related characteristics and broad field of doctorate: 1991 39

22. ...by broad field of employment and broad field of doctorate: 1991 40

Median Annual Salaries of Employed Doctoral Scientists and Engineers...

23. ...by demographic characteristics, race/ethnicity, and sex: 1991 41

24. ...by demographic characteristics and citizenship status: 1991 44

25. ...by demographic characteristics and employment sector: 1991 46

26. ...by demographic characteristics and primary work activity: 1991 48

27. ...by demographic characteristics and broad field of doctorate: 1991 50

28. ...by employment-related characteristics, race/ethnicity, and sex: 1991 52

29. ...by employment-related characteristics and citizenship status: 1991 56

30. ...by employment-related characteristics and employment sector: 1991 57

31. ...by employment-related characteristics and primary work activity: 1991 59

32. ...by employment-related characteristics and broad field of doctorate: 1991 61

Appendix

A-1. Stratification, sample, and survey responses of doctoral scientists and engineers: 1991 69

A-2. Science/engineering field classification of specialties: 1991 70

Table *Page*

A-3. Listing of a and b parameters for selected demographic groups in science and engineering fields: 1991 71

A-4. Approximate standard errors of estimated number of doctoral scientists and engineers by field: 1991 73

A-5. Approximate standard errors of estimated number of women doctoral scientists and engineers by field: 1991 74

A-6. Approximate standard errors of estimated number of black doctoral scientists and engineers by field: 1991 75

A-7. Approximate standard errors of estimated number of Asian doctoral scientists and engineers by field: 1991 76

A-8. Approximate standard errors for estimated percents of doctoral scientists and engineers: 1991 77

A-9. Approximate standard errors for estimated percents of women doctoral scientists and engineers by field: 1991 77

A-10. Approximate standard errors for estimated percents of black doctoral scientists and engineers by field: 1991 78

A-11. Approximate standard errors for estimated percents of Asian doctoral scientists and engineers by field: 1991 78

Table 1. Doctoral scientists and engineers, by field of doctorate and employment status: 1991

Field of doctorate	Total	Total employed				Seeking empl	Not working/ seeking	Retired	Other/no report
		Total	Full-time	Part-time	Post-doctoral				
Total	485,946	437,206	401,034	24,907	11,265	6,401	5,374	34,365	2,600
Sciences	410,852	367,440	334,017	22,576	10,847	5,623	5,024	30,409	2,356
Physical sciences	92,341	80,872	75,000	3,608	2,264	1,614	692	8,702	461
Chemistry	57,026	48,967	45,553	2,142	1,272	1,167	479	6,098	315
Physics/astronomy	35,315	31,905	29,447	1,466	992	447	213	2,604	146
Mathematical sciences	21,486	20,049	19,361	570	118	62	122	1,253	N
Mathematics	17,842	16,546	15,934	494	118	25	99	1,172	N
Statistics/probability	3,644	3,503	3,427	76	N	37	23	81	N
Computer/info spec	5,476	5,376	5,245	111	20	75	13	7	5
Environmental sciences	14,771	13,263	12,167	713	383	143	177	1,115	73
Earth sciences	10,928	9,745	9,056	511	178	115	145	902	21
Oceanography	2,122	1,920	1,668	95	157	19	32	99	52
Atmospheric sciences	1,721	1,598	1,443	107	48	9	N	114	N
Life sciences	128,317	113,743	100,815	5,668	7,260	1,927	2,003	9,921	723
Biological sciences	88,188	78,059	67,981	3,887	6,191	1,417	1,424	6,767	521
Agricultural sciences	19,279	16,637	15,201	927	509	219	216	2,098	109
Medical sciences	20,850	19,047	17,633	854	560	291	363	1,056	93
Psychology	72,098	65,672	57,961	7,288	423	817	1,183	3,705	721
Social sciences	76,363	68,465	63,468	4,618	379	985	834	5,706	373
Economics	21,735	19,241	18,113	1,074	54	63	215	2,162	54
Sociology/anthropology	20,198	18,094	16,317	1,605	172	531	299	1,201	73
Other social sciences	34,430	31,130	29,038	1,939	153	391	320	2,343	246
Engineering	75,094	69,766	67,017	2,331	418	778	350	3,956	244
Aeronautical/astronautical	3,392	3,087	2,951	88	48	50	32	174	49
Chemical	11,495	10,633	10,281	286	66	111	35	659	57
Civil	7,976	7,512	7,314	176	22	34	43	347	40
Electrical/electronic	18,541	16,994	16,288	616	90	290	121	1,115	21
Materials science	6,743	6,230	5,984	218	28	59	17	394	43
Mechanical	9,077	8,680	8,416	247	17	95	43	259	N
Nuclear	1,927	1,903	1,850	26	27	24	N	N	N
Systems design	1,580	1,561	1,534	27	N	13	N	N	6
Other	14,363	13,166	12,399	647	120	102	59	1,008	28

KEY: N = No cases reported (see NOTE below)

NOTE: All numbers in the table are estimates derived from a sample.

SOURCE: National Science Foundation/SRS, 1991 Survey of Doctorate Recipients

Table 2. Selected employment characteristics of doctoral scientists and engineers, by field of doctorate: 1991

[In percent]

Field of degree	Labor force participation rates	Unemployment rates	S&E employment rates	Underemployment rates	Underutilization rates
Total	91.3	1.4	89.7	1.7	3.1
Sciences	90.8	1.5	89.0	1.8	3.3
Physical sciences	89.3	2.0	91.9	1.0	2.9
Chemistry	87.9	2.3	91.3	1.0	3.3
Physics/astronomy	91.6	1.4	92.7	0.9	2.2
Mathematical sciences	93.6	0.3	92.4	0.8	1.1
Mathematics	92.9	0.2	93.2	0.8	0.9
Statistics/probability	97.1	1.0	88.5	1.1	2.2
Computer/info spec	99.5	1.4	95.3	0.3	1.7
Environmental sciences	90.8	1.1	94.1	1.9	2.9
Earth sciences	90.2	1.2	94.7	2.1	3.2
Oceanography	91.4	1.0	93.2	2.3	3.2
Atmospheric sciences	93.4	0.6	92.0	0.3	0.8
Life sciences	90.1	1.7	92.6	1.6	3.2
Biological sciences	90.1	1.8	92.9	1.7	3.4
Agricultural sciences	87.4	1.3	90.7	2.0	3.2
Medical sciences	92.7	1.5	93.1	0.9	2.4
Psychology	92.2	1.2	90.3	1.9	3.1
Social sciences	90.9	1.4	75.7	3.5	4.9
Economics	88.8	0.3	79.7	1.7	2.0
Sociology/anthropology	92.2	2.9	81.7	5.1	7.8
Other social sciences	91.6	1.2	69.9	3.7	4.9
Engineering	93.9	1.1	93.4	0.9	2.0
Aeronautical/astronautical	92.5	1.6	96.2	1.2	2.7
Chemical	93.5	1.0	93.2	0.9	2.0
Civil	94.6	0.5	94.8	0.3	0.7
Electrical/electronic	93.2	1.7	95.2	1.1	2.7
Materials science	93.3	0.9	93.2	0.4	1.3
Mechanical	96.7	1.1	92.7	1.1	2.2
Nuclear	100.0	1.2	92.4	1.8	3.0
Systems design	99.6	0.8	88.2	1.2	2.0
Other engineering	92.4	0.8	91.1	1.0	1.7

NOTE: All numbers in the table are estimates derived from a sample.

SOURCE: National Science Foundation/SRS, 1991 Survey of Doctorate Recipients

Table 3. Median annual salaries of employed doctoral scientists and engineers, by field of doctorate and years of professional work experience: 1991

Field of doctorate	Total	Less than 5 yrs	5-9 yrs	10-14 yrs	15-19 yrs	20-24 yrs	25-29 yrs	30-34 yrs	More than 35 yrs	No response
Total	$60,700	$46,000	$51,900	$60,400	$65,600	$71,000	$75,800	$77,700	$81,800	$60,700
Sciences	59,000	43,700	50,200	58,300	63,300	69,000	73,600	75,200	80,900	57,400
Physical sciences	65,100	47,700	55,300	63,600	70,000	72,800	74,100	75,600	80,600	65,000
Chemistry	63,200	49,600	55,300	62,600	69,500	71,500	70,900	70,900	76,700	M
Physics/astronomy	67,100	44,000	55,200	65,500	70,500	74,100	79,800	77,500	85,000	M
Mathematical sciences	60,800	42,700	50,400	55,900	63,200	71,300	70,800	M	M	M
Mathematics	60,100	41,900	49,300	55,200	63,000	70,600	68,700	M	M	M
Statistics/probability	62,400	M	52,000	62,000	67,600	80,000	M	M	M	M
Computer/info spec	68,100	61,300	67,800	75,600	80,400	M	M	M	M	M
Environmental sciences	60,200	41,400	50,500	60,100	63,900	73,200	76,700	M	M	M
Earth sciences	60,300	41,300	48,800	60,500	62,300	72,200	78,100	M	M	M
Oceanography	60,400	M	52,500	56,400	M	M	M	M	M	M
Atmospheric sciences	58,300	M	M	M	M	M	M	M	M	M
Life sciences	55,500	41,600	47,200	55,600	61,100	66,700	73,000	73,900	82,800	52,700
Biological sciences	55,500	39,300	46,000	55,300	61,100	66,000	72,600	73,200	85,500	50,900
Agricultural sciences	51,500	40,200	44,300	52,500	56,900	62,400	70,800	M	M	M
Medical sciences	59,500	47,200	53,100	62,300	67,100	75,800	84,800	86,600	M	M
Psychology	55,500	42,500	50,600	55,500	60,200	64,200	73,500	77,100	M	M
Social sciences	56,100	42,600	48,100	57,000	62,100	64,900	73,700	74,800	81,000	60,500
Economics	64,300	48,900	55,100	64,600	72,100	78,200	91,000	M	M	M
Sociology/anthropology	50,500	36,600	42,500	50,800	56,000	60,000	62,800	80,600	M	M
Other social sciences	55,200	42,600	46,900	56,800	60,900	60,700	73,400	M	M	M
Engineering	70,200	55,200	62,000	70,800	75,100	80,700	84,700	90,400	89,500	M
Aeronautical/astronautical	73,200	52,100	61,100	M	74,800	M	M	M	M	M
Chemical	71,700	55,800	63,100	72,400	80,000	78,400	90,100	M	M	M
Civil	65,200	50,400	61,800	65,900	70,700	73,100	M	M	M	M
Electrical/electronic	74,200	59,700	68,000	77,000	82,400	84,400	84,200	M	M	M
Materials science	65,000	52,900	60,500	73,000	70,500	72,900	M	M	M	M
Mechanical	68,900	53,200	59,700	70,200	75,000	80,800	88,000	M	M	M
Nuclear	70,400	52,300	63,400	80,500	M	M	M	M	M	M
Systems design	71,300	52,900	66,700	M	77,000	M	M	M	M	M
Other	68,100	53,100	60,000	67,200	69,500	80,800	80,800	M	M	M

KEY: M = Median salaries were not computed for groups with fewer than 20 individuals reporting salary.

NOTES: All numbers in the table are estimates derived from a sample.

Median salaries were computed only for full-time employed civilians.

SOURCE: National Science Foundation/SRS, 1991 Survey of Doctorate Recipients

BEST COPY AVAILABLE

Table 4. Employed doctoral scientists and engineers, by geographic location and broad field of doctorate: 1991

Geographic location	Total	All sciences	Physical sciences	Math sciences	Comp/ Info spec	Environ sciences	Life sciences	Psycho-logy	Social sciences	All engineering
Total (number)	437,206	367,440	80,872	20,049	5,376	13,263	113,743	65,672	68,465	69,766
	[Percent distribution]									
New England	7.9	8.2	8.5	8.6	11.4	8.1	7.3	8.4	8.6	6.7
Connecticut	1.6	1.7	1.7	1.5	1.7	1.2	1.7	1.9	1.6	1.2
Maine	0.4	0.4	0.4	0.6	N	0.3	0.4	0.6	0.5	0.4
Massachusetts	4.8	4.9	5.7	5.7	7.6	5.6	4.2	4.4	5.2	4.0
New Hampshire	0.4	0.4	0.4	0.2	1.7	0.7	0.2	0.6	0.3	0.4
Rhode Island	0.5	0.5	0.2	0.5	0.4	0.2	0.4	0.8	0.7	0.5
Vermont	0.3	0.3	0.1	0.1	N	N	0.4	0.2	0.4	0.3
Middle Atlantic	17.5	17.7	19.9	16.7	22.5	7.1	15.4	20.1	18.6	16.4
New Jersey	4.1	3.9	6.4	3.4	6.7	2.1	3.5	3.2	2.8	5.2
New York	8.9	9.3	8.2	9.5	11.9	3.6	7.9	12.6	10.8	6.4
Pennsylvania	4.5	4.5	5.4	3.9	3.9	1.5	4.1	4.2	5.1	4.8
East North Central	13.8	13.7	15.1	13.7	7.1	8.3	13.3	13.6	14.4	14.5
Illinois	4.1	4.2	4.6	3.5	4.0	2.1	4.0	3.9	4.8	3.9
Indiana	1.5	1.6	1.4	1.6	N	0.9	1.8	1.6	1.6	1.4
Michigan	2.8	2.7	3.1	2.3	0.7	1.5	2.8	2.9	2.5	3.4
Ohio	3.9	3.7	4.6	4.5	2.2	1.8	3.2	3.8	3.8	4.5
Wisconsin	1.5	1.5	1.3	1.8	0.1	1.9	1.6	1.5	1.7	1.2
West North Central	5.8	6.1	4.6	6.0	3.9	3.3	7.4	6.3	6.2	4.4
Iowa	0.8	0.9	0.6	1.0	0.9	0.3	1.1	0.8	1.0	0.4
Kansas	0.7	0.7	0.4	0.8	1.3	0.2	0.8	0.9	0.8	0.6
Minnesota	1.7	1.8	1.6	1.5	0.6	1.6	1.8	1.9	1.8	1.4
Missouri	1.8	1.8	1.6	1.9	1.0	0.6	2.3	1.7	1.8	1.4
North Dakota	0.3	0.3	0.1	0.2	N	0.2	0.5	0.3	0.1	0.3
Nebraska	0.5	0.5	0.3	0.6	0.2	0.5	0.7	0.5	0.4	0.3
South Dakota	0.2	0.2	0.1	N	N	N	0.2	0.3	0.3	0.1
South Atlantic	18.5	19.0	16.6	21.9	16.2	17.1	20.0	17.0	21.7	16.2
Delaware	0.8	0.8	1.9	0.5	0.3	0.3	0.7	0.4	0.3	0.8
District of Columbia	2.9	3.2	2.1	3.1	1.0	2.7	2.2	1.5	8.1	1.5
Florida	2.4	2.4	1.4	1.2	1.8	3.5	2.4	3.8	2.3	2.8
Georgia	1.8	1.9	1.2	1.9	2.7	0.7	2.6	1.9	1.6	1.5
Maryland	3.8	3.9	3.5	4.8	3.1	2.7	5.5	3.1	2.4	3.4
North Carolina	2.4	2.6	2.3	2.8	3.9	1.4	3.4	2.3	1.8	1.5
South Carolina	1.0	1.0	0.8	2.2	N	1.2	1.1	0.9	1.0	1.0
Virginia	3.0	3.0	2.8	5.3	3.4	4.3	1.8	3.0	4.0	3.1
West Virginia	0.4	0.3	0.5	0.1	N	0.3	0.4	0.1	0.3	0.5

See explanatory information and SOURCE at end of table.

Table 4. Employed doctoral scientists and engineers, by geographic location and broad field of doctorate: 1991

Geographic location	Total	All sciences	Physical sciences	Math sciences	Comp/ Info spec	Environ sciences	Life sciences	Psycho-logy	Social sciences	All engineering
	[Percent distribution]									
East South Central	4.3	4.3	3.7	6.2	3.2	4.2	5.0	4.2	3.5	4.4
Alabama	1.1	1.0	0.8	2.3	2.3	1.1	1.2	0.8	0.7	1.8
Kentucky	0.8	0.9	0.6	1.8	0.1	0.8	0.8	1.1	0.9	0.5
Mississippi	0.7	0.7	0.3	0.3	0.8	0.7	1.1	0.4	0.7	0.7
Tennessee	1.7	1.7	2.0	1.9	N	1.7	1.8	1.9	1.1	1.4
West South Central	7.9	7.5	7.8	5.3	7.4	14.1	8.3	6.4	6.1	9.9
Arkansas	0.4	0.4	0.3	N	N	0.5	0.5	0.5	0.5	0.2
Louisiana	1.1	1.1	1.1	0.8	0.7	0.9	1.5	0.7	1.0	1.2
Oklahoma	0.9	0.9	0.9	0.2	N	1.7	1.0	0.9	0.7	1.1
Texas	5.5	5.1	5.6	4.3	6.6	11.1	5.3	4.3	3.9	7.4
Mountain	6.3	6.2	6.3	5.6	5.2	17.0	5.9	5.0	5.9	6.9
Arizona	1.1	1.1	0.8	0.6	1.5	1.8	1.1	1.2	1.3	1.3
Colorado	1.9	2.0	1.5	1.4	2.1	10.2	1.7	1.7	1.7	1.8
Idaho	0.4	0.3	0.1	0.2	0.4	0.3	0.6	0.3	0.3	0.5
Montana	0.3	0.4	0.2	0.6	N	0.7	0.5	0.2	0.3	N
New Mexico	1.3	1.1	2.5	1.1	0.6	1.6	0.6	0.8	0.5	2.2
Nevada	0.3	0.3	0.2	0.4	N	2.0	0.2	0.2	0.3	0.3
Utah	0.8	0.9	0.8	1.0	0.7	0.2	0.9	0.5	1.3	0.7
Wyoming	0.2	0.2	0.2	0.3	N	0.3	0.2	0.1	0.2	0.1
Pacific	17.9	17.4	17.6	15.9	22.7	20.6	17.4	19.0	15.0	20.5
Alaska	0.2	0.2	0.1	0.3	N	1.4	0.2	0.2	0.3	0.1
California	13.7	13.1	14.5	12.3	19.8	13.9	11.9	15.4	10.7	17.2
Hawaii	0.5	0.5	0.3	0.5	N	0.9	0.8	0.2	0.6	0.3
Oregon	1.0	1.0	0.6	0.5	2.3	1.2	1.4	0.9	0.9	0.9
Washington	2.2	2.3	1.9	1.8	0.5	3.2	2.8	2.2	2.0	1.9
U.S. possessions	0.3	0.3	0.2	0.6	N	N	0.3	0.2	0.5	0.1
U.S. location unspecified	N	N	N	N	0.4	N	N	N	N	N

KEY: N = No cases reported (see NOTE below)

NOTE: All numbers in the table are estimates derived from a sample.

SOURCE: National Science Foundation/SRS, 1991 Survey of Doctorate Recipients

Table 5. Median annual salaries of employed doctoral scientists and engineers, by geographic location and broad field: 1991

Geographic location	Total	All sciences	Physical sciences	Math sciences	Comp/ info spec	Environ sciences	Life sciences	Psycho-logy	Social sciences	All engineering
Total	$60,700	$59,000	$65,100	$60,800	$68,100	$60,200	$55,500	$55,500	$56,100	$70,200
New England	60,800	59,000	66,000	63,800	73,500	56,600	55,600	56,200	55,400	70,900
Connecticut	67,000	65,000	74,000	M	M	M	61,900	61,900	64,300	79,600
Maine	59,900	58,800	M	M	M	M	51,100	M	M	M
Massachusetts	60,600	58,800	62,900	66,600	73,300	61,400	55,000	52,500	55,600	71,300
New Hampshire	54,300	49,700	M	M	M	M	51,300	M	M	M
Rhode Island	55,000	51,700	M	M	M	M	46,200	M	M	M
Vermont	56,700	53,500	M	M	M	M	50,300	M	M	M
Middle Atlantic	64,300	62,400	67,500	63,500	70,900	60,300	60,500	59,900	60,100	70,800
New Jersey	67,700	65,500	67,800	71,400	73,800	M	65,700	60,500	62,300	72,100
New York	63,900	61,900	71,900	58,900	67,700	60,300	58,900	60,200	61,900	70,900
Pennsylvania	61,000	60,000	64,900	62,200	M	M	59,600	54,300	52,700	70,000
East North Central	60,200	58,000	62,000	60,000	68,700	45,300	58,000	55,200	55,700	67,000
Illinois	59,700	57,600	59,500	65,700	M	M	55,500	55,000	57,400	70,800
Indiana	60,000	56,800	60,600	M	M	M	62,300	56,600	51,600	67,500
Michigan	62,500	61,400	65,500	51,600	M	M	62,300	62,600	56,800	68,300
Ohio	59,000	56,500	60,900	61,400	M	M	54,900	52,000	55,600	63,100
Wisconsin	55,700	54,000	65,200	M	M	M	52,500	49,200	55,300	67,000
West North Central	54,700	52,600	60,500	53,700	M	55,500	52,100	48,700	50,300	68,000
Iowa	55,500	55,100	59,900	M	M	M	50,600	M	60,400	67,400
Kansas	50,800	49,000	M	M	M	M	50,500	45,800	48,000	56,500
Minnesota	59,000	57,800	65,900	M	M	M	55,200	52,800	50,500	72,400
Missouri	53,100	51,500	58,300	M	M	M	51,500	45,500	50,300	72,800
North Dakota	50,000	45,900	M	M	M	M	45,700	M	M	M
Nebraska	55,500	53,600	M	M	M	M	57,200	M	M	M
South Dakota	44,200	44,200	M	M	M	M	M	M	M	M
South Atlantic	60,800	60,000	64,800	61,600	65,500	60,300	56,200	54,900	61,000	68,100
Delaware	67,000	66,700	68,600	M	M	M	62,100	M	M	70,400
District of Columbia	70,100	68,600	68,500	80,800	M	M	60,500	65,000	72,700	76,200
Florida	55,700	55,100	63,500	M	M	55,900	54,000	52,400	51,100	60,100
Georgia	58,100	55,300	53,400	M	M	M	57,400	58,700	46,200	72,100
Maryland	61,000	59,900	65,700	64,100	M	M	55,700	52,800	63,400	70,200
North Carolina	57,200	55,900	61,100	51,700	M	M	58,600	53,800	50,800	68,100
South Carolina	52,100	50,400	56,900	M	M	M	50,300	46,600	44,600	62,000
Virginia	65,700	63,800	72,100	67,900	M	62,100	55,700	66,000	61,800	70,500
West Virginia	56,900	56,000	57,100	M	M	M	54,900	M	M	58,200

See explanatory information and SOURCE at end of table.

Table 5. Median annual salaries of employed doctoral scientists and engineers, by geographic location and broad field: 1991

Geographic location	Total	All sciences	Physical sciences	Math sciences	Comp/ info spec	Environ sciences	Life sciences	Psycho-logy	Social sciences	All engineering
East South Central	$55,400	$53,300	$58,900	$52,700	M	$52,000	$50,000	$55,500	$55,700	$63,400
Alabama	60,000	55,600	55,700	M	M	M	53,400	55,300	62,200	63,700
Kentucky	55,500	55,000	61,400	M	M	M	55,000	52,300	55,600	66,600
Mississippi	48,900	48,200	M	M	M	M	46,400	M	48,800	56,400
Tennessee	55,700	54,100	60,600	52,600	M	M	48,300	60,700	54,900	64,000
West South Central	58,100	53,700	60,700	51,000	$64,700	65,300	50,700	51,400	50,000	69,200
Arkansas	46,000	45,000	M	M	M	M	46,400	M	M	M
Louisiana	52,800	51,100	64,000	M	M	M	47,400	53,200	48,500	61,700
Oklahoma	53,600	50,200	50,800	M	M	M	45,900	51,400	M	69,300
Texas	60,600	55,800	60,700	55,400	64,600	68,900	52,700	51,900	52,300	70,500
Mountain	58,100	55,000	64,100	61,300	M	58,100	50,200	51,700	51,100	70,200
Arizona	59,200	55,400	60,400	M	M	M	48,200	55,000	56,400	66,500
Colorado	58,600	55,300	60,000	M	M	67,100	53,900	53,900	50,800	70,700
Idaho	53,600	50,500	M	M	M	M	48,900	M	M	70,600
Montana	44,800	44,800	M	M	M	M	45,500	M	M	M
New Mexico	65,300	62,700	70,300	M	M	M	50,600	43,500	M	72,500
Nevada	62,200	61,700	M	M	M	M	M	M	M	M
Utah	53,200	51,300	61,100	M	M	M	49,200	M	50,900	63,400
Wyoming	55,300	54,600	M	M	M	M	M	M	M	M
Pacific	65,200	61,700	70,300	67,500	75,200	66,500	57,000	60,300	58,500	74,400
Alaska	61,900	61,300	M	M	M	M	M	M	M	M
California	68,900	66,400	72,800	72,300	75,600	72,000	60,800	60,700	60,900	75,900
Hawaii	56,600	56,200	M	M	M	M	49,800	M	49,900	M
Oregon	52,500	50,600	58,500	M	M	M	49,100	55,800	50,000	57,600
Washington	55,600	54,400	57,800	M	M	61,000	51,100	50,400	50,400	62,100
U.S. possessions	37,500	36,300	27,100	M	M	M	40,300	M	39,300	M

KEY: M = Median salaries were not computed for groups with fewer than 20 individuals reporting salary.

NOTE: All numbers in the table are estimates derived from a sample.

Median salaries were computed only for full-time employed civilians.

SOURCE: National Science Foundation/SRS, 1991 Survey of Doctorate Recipients

Table 6. Doctoral scientists and engineers employed in universities and 4-year colleges, by broad field of doctorate, sex, and academic rank: 1991

[Percent distribution]

Field/sex	Total	Professor	Associate professor	Assistant professor	Instructor/ lecturer	Other faculty	Does not apply/ no report
Total (number)	195,317	71,780	46,474	36,270	4,158	7,685	28,950
Male (percent)	80.3	91.3	79.1	70.9	57.0	67.0	73.9
Female (percent)	19.7	8.7	20.9	29.1	43.0	33.0	26.1
Sciences (number)	172,540	62,205	41,296	32,257	3,948	6,862	25,972
Male (percent)	78.3	90.1	76.9	68.5	55.1	63.1	71.9
Female (percent)	21.7	9.9	23.1	31.5	44.9	36.9	28.1
Physical Sciences (number)	27,716	11,098	4,193	3,447	426	976	7,576
Male (percent)	92.1	97.1	91.0	84.4	70.9	88.9	90.5
Female (percent)	7.9	2.9	9.0	15.6	29.1	11.1	9.5
Mathematical sciences (number)	13,832	5,827	4,407	2,328	154	160	956
Male (percent)	91.4	95.4	89.8	85.2	70.1	79.4	95.1
Female (percent)	8.6	4.6	10.2	14.8	29.9	20.6	4.9
Computer/info spec (number)	2,453	362	807	1,064	31	25	164
Male (percent)	86.7	92.0	88.6	84.3	67.7	80.0	86.0
Female (percent)	13.3	8.0	11.4	15.7	32.3	20.0	14.0
Environmental sciences (number)	5,370	1,890	1,395	728	104	204	1,049
Male (percent)	88.2	94.4	93.2	76.6	44.2	65.2	87.1
Female (percent)	11.8	5.6	6.8	23.4	55.8	34.8	12.9
Life sciences (number)	59,915	18,965	12,996	12,225	1,621	2,342	11,766
Male (percent)	73.8	89.3	72.8	64.1	48.6	65.3	65.4
Female (percent)	26.2	10.7	27.2	35.9	51.4	34.7	34.6
Psychology (number)	21,395	7,695	5,200	3,987	609	1,596	2,308
Male (percent)	64.2	79.5	66.6	53.5	50.4	43.4	43.7
Female (percent)	35.8	20.5	33.4	46.5	49.6	56.6	56.3
Social sciences (number)	41,859	16,368	12,298	8,478	1,003	1,559	2,153
Male (percent)	76.6	88.8	73.7	67.9	60.2	61.5	53.9
Female (percent)	23.4	11.2	26.3	32.1	39.8	38.5	46.1
Engineering (number)	22,777	9,575	5,178	4,013	210	823	2,978
Male (percent)	95.9	99.0	96.1	90.6	93.8	100.0	91.4
Female (percent)	4.1	1.0	3.9	9.4	6.2	N	8.6

KEY: N = No cases reported (see NOTE below)

NOTE: All numbers in the table are derived from a sample.

SOURCE: National Science Foundation/SRS, 1991 Survey of Doctorate Recipients

Table 7. Doctoral scientists and engineers employed in universities and 4-year colleges, by broad field of doctorate, sex, and tenure status: 1991

[Percent distribution]

Field/sex	Total	Tenured	Not tenured		Not applicable/ no report
			In tenure track	Not in track	
Total (number)	195,317	106,728	34,794	15,495	38,300
Male (percent)	80.3	87.3	73.5	62.9	74.3
Female (percent)	19.7	12.7	26.5	37.1	25.7
Sciences (number)	172,540	93,498	30,235	14,380	34,427
Male (percent)	78.3	85.7	70.8	60.2	72.2
Female (percent)	21.7	14.3	29.2	39.8	27.8
Physical sciences (number)	27,716	14,271	3,070	2,039	8,336
Male (percent)	92.1	95.9	85.2	82.5	90.5
Female (percent)	7.9	4.1	14.8	17.5	9.5
Mathematical sciences (number)	13,832	9,635	2,100	745	1,352
Male (percent)	91.4	94.0	85.7	74.1	91.2
Female (percent)	8.6	6.0	14.3	25.9	8.8
Computer/info spec (number)	2,453	1,054	1,137	141	121
Male (percent)	86.7	90.8	83.6	86.5	80.2
Female (percent)	13.3	9.2	16.4	13.5	19.8
Environmental sciences (number)	5,370	3,036	742	427	1,165
Male (percent)	88.2	93.4	79.2	67.0	88.1
Female (percent)	11.8	6.6	20.8	33.0	11.9
Life sciences (number)	59,915	27,923	11,152	5,939	14,901
Male (percent)	73.8	84.2	66.1	55.4	67.6
Female (percent)	26.2	15.8	33.9	44.6	32.4
Psychology (number)	21,395	11,410	3,265	2,352	4,368
Male (percent)	64.2	73.9	59.3	45.2	52.5
Female (percent)	35.8	26.1	40.7	54.8	47.5
Social sciences (number)	41,859	26,169	8,769	2,737	4,184
Male (percent)	76.6	82.8	70.0	60.9	62.2
Female (percent)	23.4	17.2	30.0	39.1	37.8
Engineering (number)	22,777	13,230	4,559	1,115	3,873
Male (percent)	95.9	98.0	91.8	96.9	93.1
Female (percent)	4.1	2.0	8.2	3.1	6.9

NOTE: All numbers in the table are estimates derived from a sample.

SOURCE: National Science Foundation/SRS, 1991 Survey of Doctorate Recipients

Table 8. Employed doctoral scientists and engineers, by field of doctorate and citizenship status: 1991

Field of doctorate	Total 1/	U.S. citizen			Non-U.S. citizen		
		Total	Native	Naturalized	Total	Permanent resident	Temporary resident
Total	437,206	406,631	361,736	44,780	30,482	23,605	5,064
Sciences	367,440	346,768	317,098	29,630	20,594	15,740	3,623
Physical sciences	80,872	75,091	66,019	9,072	5,781	4,137	1,331
Chemistry	48,967	46,084	40,795	5,289	2,883	2,187	567
Physics/astronomy	31,905	29,007	25,224	3,783	2,898	1,950	764
Mathematical sciences	20,049	18,160	15,956	2,199	1,889	1,435	319
Mathematics	16,546	15,190	13,593	1,592	1,356	1,022	230
Statistics/probability	3,503	2,970	2,363	607	533	413	89
Computer/info spec	5,376	4,369	3,758	611	1,007	774	133
Environmental sciences	13,263	12,658	11,657	1,001	605	376	150
Earth sciences	9,745	9,311	8,577	734	434	305	101
Oceanography	1,920	1,862	1,772	90	58	30	14
Atmospheric sciences	1,598	1,485	1,308	177	113	41	35
Life sciences	113,743	108,290	98,937	9,318	5,437	3,948	1,231
Biological sciences	78,059	74,577	68,399	6,164	3,466	2,438	873
Agricultural sciences	16,637	15,585	14,251	1,334	1,052	762	209
Medical sciences	19,047	18,128	16,287	1,820	919	748	149
Psychology	65,672	64,460	61,937	2,523	1,177	1,038	96
Social sciences	68,465	63,740	58,834	4,906	4,698	4,032	363
Economics	19,241	17,204	15,505	1,699	2,010	1,605	189
Sociology/anthropology	18,094	17,290	16,404	886	804	718	79
Other social sciences	31,130	29,246	26,925	2,321	1,884	1,709	95
Engineering	69,766	59,863	44,338	15,150	9,888	7,865	1,441
Aeronautical/astronautical	3,087	2,640	2,157	483	447	410	37
Chemical	10,633	9,420	7,287	2,133	1,213	1,090	94
Civil	7,512	6,322	4,405	1,917	1,190	960	165
Electrical/electronic	16,994	14,234	10,618	3,616	2,760	2,257	450
Materials science	6,230	5,153	4,025	1,128	1,077	930	119
Mechanical	8,680	7,343	5,268	2,065	1,322	909	302
Nuclear	1,903	1,634	1,286	348	269	145	100
Systems design	1,561	1,360	1,035	325	201	144	11
Other	13,166	11,757	8,557	3,135	1,409	1,020	163

1/ Totals include individuals for whom citizenship was unspecified or from whom no response was received.

NOTE: All numbers in the table are estimates derived from a sample.

SOURCE: National Science Foundation/SRS, 1991 Survey of Doctorate Recipients

Table 9. Employed doctoral scientists and engineers, by field of doctorate and employment sector: 1991

Field of doctorate	Total 1/ empl'd	Education		Business/industry			Government		Non-profit 2/
		Total	Univ/4-yr colleges	Total	Not self-empl'd	Self-empl'd	Federal civilian	State/ local	
Total	437,206	206,225	195,317	157,256	118,627	38,629	27,610	10,357	29,749
Sciences	367,440	183,278	172,540	117,650	83,070	34,580	23,794	9,948	27,512
Physical sciences	80,872	29,368	27,716	42,086	38,302	3,784	5,006	604	3,155
Chemistry	48,967	14,834	13,784	29,751	27,142	2,609	2,069	519	1,422
Physics/astronomy	31,905	14,534	13,932	12,335	11,160	1,175	2,937	85	1,733
Mathematical sciences	20,049	14,280	13,832	4,094	3,481	613	945	57	505
Mathematics	16,546	12,248	11,810	3,129	2,653	476	690	N	311
Statistics/probability	3,503	2,032	2,022	965	828	137	255	57	194
Computer/info spec	5,376	2,494	2,453	2,638	2,503	135	65	N	112
Environmental sciences	13,263	5,508	5,370	3,729	3,138	591	2,568	777	473
Earth sciences	9,745	3,937	3,831	2,959	2,542	417	1,930	689	156
Oceanography	1,920	899	867	502	403	99	371	60	68
Atmospheric sciences	1,598	672	672	268	193	75	267	28	249
Life sciences	113,743	62,767	59,915	29,619	22,942	6,677	9,060	2,654	8,146
Biological sciences	78,059	44,726	42,565	18,672	14,638	4,034	6,079	1,818	5,836
Agricultural sciences	16,637	8,277	7,934	5,416	4,193	1,223	1,964	356	408
Medical sciences	19,047	9,764	9,416	5,531	4,111	1,420	1,017	480	1,902
Psychology	65,672	24,850	21,395	24,080	5,949	18,131	1,775	2,692	11,385
Social sciences	68,465	44,011	41,859	11,404	6,755	4,649	4,375	3,164	3,736
Economics	19,241	12,098	11,891	3,327	2,116	1,211	1,938	492	489
Sociology/anthropology	18,094	12,131	11,416	2,814	1,630	1,184	872	563	1,368
Other social sciences	31,130	19,782	18,552	5,263	3,009	2,254	1,565	2,109	1,879
Engineering	69,766	22,947	22,777	39,606	35,557	4,049	3,816	409	2,237
Aeronautical/astronautical	3,087	1,059	1,059	1,664	1,400	264	247	N	83
Chemical	10,633	2,369	2,358	7,427	6,968	459	296	N	399
Civil	7,512	3,068	3,040	3,393	2,690	703	609	203	187
Electrical/electronic	16,994	5,458	5,427	10,116	9,516	600	688	10	590
Materials science	6,230	1,238	1,238	4,545	4,126	419	250	N	126
Mechanical	8,680	2,931	2,891	4,773	4,133	640	600	33	272
Nuclear	1,903	553	533	999	966	33	118	44	189
Systems design	1,561	704	704	726	633	93	38	14	79
Other	13,166	5,567	5,527	5,963	5,125	838	570	105	312

1/ Totals include individuals who work in employment sectors other than education, business/industry, government, and nonprofit organizations; they also include individuals for whom no response was received.

2/ Nonprofit [organizations] include hospitals and clinics.

KEY: N = No cases reported (see NOTE below)

NOTE: All numbers in the table are estimates derived from a sample.

SOURCE: National Science Foundation/SRS, 1991 Survey of Doctorate Recipients.

BEST COPY AVAILABLE

Table 10. Employed doctoral scientists and engineers, by field of doctorate and primary work activity: 1991

Field of doctorate	Total empl'd	Research & development				Mgmt/administration			Teach-ing	Prof services	Consult-ing	Other/ no resp
		Total	Basic	App'd	Dvlpt/ design	Total	R&D	Other				
Total	437,206	157,338	61,015	71,697	24,626	68,362	33,385	34,977	99,199	39,991	19,234	53,082
Sciences	367,440	126,617	57,271	56,073	13,273	55,257	24,657	30,600	87,353	39,594	13,873	44,746
Physical sciences	80,872	38,708	12,060	19,770	6,878	14,388	10,260	4,128	13,288	1,127	2,660	10,701
Chemistry	48,967	22,354	5,883	12,778	3,693	9,266	6,600	2,666	7,755	618	1,875	7,099
Physics/astronomy	31,905	16,354	6,177	6,992	3,185	5,122	3,660	1,462	5,533	509	785	3,602
Mathematical sciences	20,049	5,909	2,825	2,062	1,022	1,851	612	1,239	8,996	164	620	2,509
Mathematics	16,546	4,799	2,377	1,461	961	1,500	441	1,059	7,789	164	432	1,862
Statistics/probability	3,503	1,110	448	601	61	351	171	180	1,207	N	188	647
Computer/info spec	5,376	2,745	890	1,131	724	769	452	317	990	45	106	721
Environmental sciences	13,263	5,631	2,621	2,815	195	2,045	1,205	840	2,797	108	977	1,705
Earth sciences	9,745	3,605	1,583	1,905	117	1,561	936	625	2,341	88	716	1,434
Oceanography	1,920	1,199	696	465	38	177	97	80	236	20	151	137
Atmospheric sciences	1,598	827	342	445	40	307	172	135	220	N	110	134
Life sciences	113,743	52,122	30,144	19,149	2,829	17,235	8,710	8,525	20,207	7,457	3,332	13,390
Biological sciences	78,059	37,914	25,294	11,024	1,596	10,896	5,880	5,016	14,338	4,671	1,874	8,366
Agricultural sciences	16,637	7,413	1,804	4,858	751	2,637	1,206	1,431	2,257	359	748	3,223
Medical sciences	19,047	6,795	3,046	3,267	482	3,702	1,624	2,078	3,612	2,427	710	1,801
Psychology	65,672	8,455	3,754	3,801	900	8,102	1,292	6,810	11,220	29,347	2,947	5,601
Social sciences	68,465	13,047	4,977	7,345	725	10,867	2,126	8,741	29,855	1,346	3,231	10,119
Economics	19,241	4,954	1,534	3,189	231	2,653	664	1,989	7,593	118	1,200	2,723
Sociology/anthropology	18,094	3,329	1,470	1,785	74	3,056	640	2,416	8,259	471	490	2,489
Other social sciences	31,130	4,764	1,973	2,371	420	5,158	822	4,336	14,003	757	1,541	4,907
Engineering	69,766	30,721	3,744	15,624	11,353	13,105	8,728	4,377	11,846	397	5,361	8,336
Aeronautical/astronautical	3,087	1,641	193	875	573	549	506	43	570	15	142	170
Chemical	10,633	5,122	487	2,762	1,873	2,218	1,339	879	1,149	53	638	1,453
Civil	7,512	1,763	218	1,072	473	1,184	635	549	2,126	60	1,490	889
Electrical/electronic	16,994	8,405	798	3,764	3,843	3,379	2,368	1,011	2,872	69	872	1,397
Materials science	6,230	3,233	456	1,798	979	1,212	943	269	490	N	296	999
Mechanical	8,680	3,761	501	1,684	1,576	1,592	1,144	448	1,669	31	518	1,109
Nuclear	1,903	907	100	475	332	326	296	30	144	4	151	371
Systems design	1,561	695	81	365	249	252	176	76	305	N	173	136
Other	13,166	5,194	910	2,829	1,455	2,393	1,321	1,072	2,521	165	1,081	1,812

KEY: N = No cases reported (see NOTE below)

NOTE: All numbers in the table are estimates derived from a sample.

SOURCE: National Science Foundation/SRS, 1991 Survey of Doctorate Recipients

Table 11. Employed doctoral scientists and engineers, by field of doctorate, race/ethnicity, and sex: 1991

Field of doctorate	Total 1/			White			Asian/Pacific Islander		
	Total	Male	Female	Total	Male	Female	Total	Male	Female
Total	437,206	355,043	82,163	379,762	307,363	72,399	44,640	38,439	6,201
Sciences	367,440	287,670	79,770	328,030	257,492	70,538	27,956	22,235	5,721
Physical sciences	80,872	73,680	7,192	69,500	63,863	5,637	9,660	8,245	1,415
Chemistry	48,967	43,239	5,728	42,057	37,476	4,581	5,765	4,747	1,018
Physics/astronomy	31,905	30,441	1,464	27,443	26,387	1,056	3,895	3,498	397
Mathematical sciences	20,049	18,001	2,048	17,197	15,527	1,670	2,224	1,894	330
Mathematics	16,546	14,952	1,594	14,504	13,178	1,326	1,470	1,250	220
Statistics/probability	3,503	3,049	454	2,693	2,349	344	754	644	110
Computer/info spec	5,376	4,743	633	4,215	3,678	537	1,100	1,017	83
Environmental sciences	13,263	11,995	1,268	12,462	11,284	1,178	690	616	74
Earth sciences	9,745	8,783	962	9,239	8,346	893	427	374	53
Oceanography	1,920	1,711	209	1,837	1,632	205	55	51	4
Atmospheric sciences	1,598	1,501	97	1,386	1,306	80	208	191	17
Life sciences	113,743	86,480	27,263	101,419	77,767	23,652	9,278	6,711	2,567
Biological sciences	78,059	59,223	18,836	69,909	53,697	16,212	6,200	4,265	1,935
Agricultural sciences	16,637	14,963	1,674	14,825	13,401	1,424	1,441	1,216	225
Medical sciences	19,047	12,294	6,753	16,685	10,669	6,016	1,637	1,230	407
Psychology	65,672	40,656	25,016	62,205	38,888	23,317	1,039	572	467
Social sciences	68,465	52,115	16,350	61,032	46,485	14,547	3,965	3,180	785
Economics	19,241	17,070	2,171	16,763	14,883	1,880	1,687	1,456	231
Sociology/anthropology	18,094	11,572	6,522	16,603	10,606	5,997	603	404	199
Other social sciences	31,130	23,473	7,657	27,666	20,996	6,670	1,675	1,320	355
Engineering	69,766	67,373	2,393	51,732	49,871	1,861	16,684	16,204	480
Aeronautical/astronautical	3,087	3,026	61	2,442	2,416	26	596	561	35
Chemical	10,633	10,236	397	7,861	7,534	327	2,658	2,606	52
Civil	7,512	7,241	271	5,471	5,252	219	1,750	1,704	46
Electrical/electronic	16,994	16,569	425	12,505	12,219	286	4,154	4,025	129
Materials science	6,230	5,859	371	4,492	4,219	273	1,669	1,575	94
Mechanical	8,680	8,500	180	6,161	6,006	155	2,355	2,330	25
Nuclear	1,903	1,849	54	1,557	1,509	48	339	333	6
Systems design	1,561	1,352	209	1,228	1,033	195	242	235	7
Other	13,166	12,741	425	10,015	9,683	332	2,921	2,835	86

See explanatory information and SOURCE at end of table

Table 11. Employed doctoral scientists and engineers, by field of doctorate, race/ethnicity, and sex: 1991

Field of doctorate	Black			Native American			Hispanic 2/		
	Total	Male	Female	Total	Male	Female	Total	Male	Female
Total	9,409	6,449	2,960	813	613	200	8,161	6,355	1,806
Sciences	8,529	5,610	2,919	700	500	200	6,856	5,138	1,718
Physical sciences	976	864	112	111	103	8	1,399	1,233	166
Chemistry	722	621	101	62	54	8	891	742	149
Physics/astronomy	254	243	11	49	49	N	508	491	17
Mathematical sciences	240	209	31	15	15	N	453	402	51
Mathematics	194	163	31	5	5	N	351	321	30
Statistics/probability	46	46	N	10	10	N	102	81	21
Computer/info spec	27	16	11	8	6	2	91	89	2
Environmental sciences	30	27	3	26	20	6	147	136	11
Earth sciences	30	27	3	18	12	6	128	117	11
Oceanography	N	N	N	4	4	N	11	11	N
Atmospheric sciences	N	N	N	4	4	N	8	8	N
Life sciences	2,248	1,404	844	250	158	92	1,882	1,408	474
Biological sciences	1,432	885	547	148	104	44	1,154	841	313
Agricultural sciences	228	211	17	48	40	8	356	307	49
Medical sciences	588	308	280	54	14	40	372	260	112
Psychology	2,040	981	1,059	123	61	62	1,328	758	570
Social sciences	2,968	2,109	859	167	137	30	1,556	1,112	444
Economics	645	591	54	53	53	N	466	414	52
Sociology/anthropology	695	460	235	77	64	13	512	326	186
Other social sciences	1,628	1,058	570	37	20	17	578	372	206
Engineering	880	839	41	113	113	N	1,305	1,217	88
Aeronautical/astronautical	49	49	N	N	N	N	50	50	N
Chemical	92	74	18	4	4	N	133	113	20
Civil	187	181	6	17	17	N	142	131	11
Electrical/electronic	242	236	6	19	19	N	340	325	15
Materials science	50	46	4	11	11	N	153	142	11
Mechanical	117	117	N	5	5	N	179	175	4
Nuclear	5	5	N	N	N	N	53	49	4
Systems design	91	84	7	N	N	N	66	61	5
Other	47	47	N	57	57	N	189	171	18

1/ Totals include individuals whose race was specified as "other" and individuals from whom no response was received.

2/ Individuals who are included in the ethnic category "Hispanic" also may have been included in one of the race categories.

KEY: N = No cases reported (see NOTE below)

NOTE: All numbers in the table are estimates derived from a sample.

SOURCE: National Science Foundation/SRS, 1991 Survey of Doctorate Recipients

Table 12. Employed doctoral scientists and engineers, by demographic characteristics and broad field of doctorate: 1991

Characteristics	Total	All sciences	Physical sciences	Math sciences	Comp/ info spec	Environ sciences	Life sciences	Psycho-logy	Social sciences	All engineering
Total (number)	437,206	367,440	80,872	20,049	5,376	13,263	113,743	65,672	68,465	69,766
	[Percent distribution]									
Sex:										
Men	81.2	78.3	91.1	89.8	88.2	90.4	76.0	61.9	76.1	96.6
Women	18.8	21.7	8.9	10.2	11.8	9.6	24.0	38.1	23.9	3.4
Race:										
White	86.9	89.3	85.9	85.8	78.4	94.0	89.2	94.7	89.1	74.2
Asian/Pacific Islander	10.2	7.6	11.9	11.1	20.5	5.2	8.2	1.6	5.8	23.9
Black	2.2	2.3	1.2	1.2	0.5	0.2	2.0	3.1	4.3	1.3
Native American	0.2	0.2	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.2
Other	0.1	0.1	0.1	0.1	N	0.2	0.1	0.1	0.1	0.2
No response	0.5	0.5	0.6	1.8	0.5	0.2	0.3	0.4	0.4	0.3
Ethnicity:										
Hispanic	1.9	1.9	1.7	2.3	1.7	1.1	1.7	2.0	2.3	1.9
Non-Hispanic	97.0	97.0	97.0	95.3	96.1	98.1	97.4	97.1	96.5	97.2
No response	1.1	1.1	1.3	2.4	2.2	0.7	0.9	0.9	1.2	1.0
Age:										
Under 30	1.0	0.9	1.3	1.5	5.0	0.6	0.7	0.7	0.6	1.6
30-34	9.1	8.6	11.2	8.5	16.7	8.4	9.2	6.9	5.4	12.2
35-39	16.8	17.1	15.7	14.1	25.1	15.8	20.5	17.4	13.2	15.5
40-44	19.4	20.1	15.1	17.3	23.2	21.3	20.3	24.7	21.7	16.0
45-49	20.4	20.5	17.8	24.2	18.7	21.3	19.9	21.6	22.7	19.8
50-54	14.9	14.5	16.9	16.4	7.6	15.1	13.1	11.6	17.0	16.5
55-59	8.6	8.3	9.7	9.5	1.9	9.2	7.7	7.7	8.2	10.0
60-64	5.6	5.8	6.9	5.2	0.5	5.6	5.4	5.3	6.2	4.8
65-75	3.9	4.0	5.3	3.4	0.2	2.4	3.2	3.6	4.8	3.3
No response	0.2	0.2	0.1	N	1.1	0.2	0.1	0.4	0.2	0.3
Citizenship:										
U.S. total	93.0	94.4	92.9	90.6	81.3	95.4	95.2	98.2	93.1	85.8
U.S. native-born	82.7	86.3	81.6	79.6	69.9	87.9	87.0	94.3	85.9	64.0
U.S. naturalized	10.2	8.1	11.2	11.0	11.4	7.5	8.2	3.8	7.2	21.7
Non-U.S. total	7.0	5.6	7.1	9.4	18.7	4.6	4.8	1.8	6.9	14.2
Non-U.S. perm. resident	5.4	4.3	5.1	7.2	14.4	2.8	3.5	1.6	5.9	11.3
Non-U.S. temp. resident	1.2	1.0	1.6	1.6	2.5	1.1	1.1	0.1	0.5	2.1

See explanatory information and SOURCE at end of table.

BEST COPY AVAILABLE

Table 12. Employed doctoral scientists and engineers, by demographic characteristics and broad field of doctorate: 1991

Characteristics	Total	All sciences	Physical sciences	Math sciences	Comp/ info spec	Environ sciences	Life sciences	Psycho-logy	Social sciences	All engineering
	[Percent distribution]									
Geographic division:										
New England	7.9	8.2	8.5	8.6	11.4	8.1	7.3	8.4	8.6	6.7
Middle Atlantic	17.5	17.7	19.9	16.7	22.5	7.1	15.4	20.1	18.6	16.4
East North Central	13.8	13.7	15.1	13.7	7.1	8.3	13.3	13.6	14.4	14.5
West North Central	5.8	6.1	4.6	6.0	3.9	3.3	7.4	6.3	6.2	4.4
South Atlantic	18.5	19.0	16.6	21.9	16.2	17.1	20.0	17.0	21.7	16.2
East South Central	4.3	4.3	3.7	6.2	3.2	4.2	5.0	4.2	3.5	4.4
West South Central	7.9	7.5	7.8	5.3	7.4	14.1	8.3	6.4	6.1	9.9
Mountain	6.3	6.2	6.3	5.6	5.2	17.0	5.9	5.0	5.9	6.9
Pacific	17.6	17.1	17.4	15.3	22.7	20.6	17.1	18.8	14.5	20.4
Other U.S.	0.3	0.3	0.2	0.6	0.4	N	0.3	0.2	0.5	0.2
Place of birth:										
U.S.	79.5	82.9	78.1	77.4	66.8	85.0	83.7	90.2	82.7	61.3
Canada	0.8	0.8	1.0	1.0	1.5	1.1	0.8	0.8	0.7	0.5
Latin & South America	1.1	1.0	1.0	1.4	0.8	0.5	1.0	0.8	1.3	1.4
North, Central, West Europe	2.3	2.4	2.7	2.7	2.3	2.9	2.0	1.9	2.7	1.9
Eastern Europe	1.1	0.9	1.1	2.1	1.5	1.1	0.7	0.6	1.1	2.0
Eastern Asia	5.9	4.3	7.1	6.4	10.1	3.0	4.9	0.5	2.8	14.4
Western Asia	4.8	3.3	4.8	5.5	12.5	2.5	3.0	0.8	3.2	12.7
Australasia 1/	0.3	0.3	0.3	0.4	0.6	0.5	0.3	0.2	0.3	0.5
Africa	1.0	0.8	0.6	0.9	0.9	0.4	0.8	0.3	1.7	1.9
No response	3.3	3.3	3.5	2.2	3.0	3.0	2.8	3.9	3.5	3.5

1/ Australasia comprises Australia, New Zealand, Indonesia, and the Philippines.

KEY: N = No cases reported (see NOTE below)

NOTE: All numbers in the table are estimates derived from a sample.

SOURCE: National Science Foundation/SRS, 1991 Survey of Doctorate Recipients

Table 13. Employed doctoral scientists and engineers, by demographic characteristics and citizenship status: 1991

Characteristics	Total 1/	U.S. citizen			Non-U.S. citizen		
		Total	Native	Naturalized	Total	Perm res	Temp res
Total (number)	437,206	406,631	361,736	44,780	30,482	23,605	5,064
	[Percent distribution]						
Sex:							
Men	81.2	80.9	80.3	85.5	85.8	85.8	84.3
Women	18.8	19.1	19.7	14.5	14.2	14.2	15.7
Race:							
White	86.9	90.5	96.3	43.5	38.5	39.8	31.6
Asian/Pacific Islander	10.2	6.9	1.1	53.8	54.7	53.0	61.9
Black	2.2	1.9	1.9	2.0	5.6	6.0	4.8
Native American	0.2	0.2	0.2	N	N	N	N
Other	0.1	0.1	0.1	0.2	0.3	0.3	N
No response	0.5	0.4	0.4	0.6	1.0	0.9	1.6
Ethnicity:							
Hispanic	1.9	1.6	1.3	4.2	5.4	5.4	4.7
Non-Hispanic	97.0	97.3	97.7	94.4	93.4	93.7	94.4
No response	1.1	1.1	1.1	1.4	1.2	0.9	0.8
Age:							
Under 30	1.0	0.8	0.9	0.4	3.8	2.3	8.6
30-34	9.1	8.1	8.5	4.8	23.7	19.8	40.1
35-39	16.8	15.8	16.0	13.7	31.0	31.3	31.2
40-44	19.4	19.6	19.5	20.3	17.1	18.8	9.6
45-49	20.4	21.0	21.1	20.9	12.2	13.3	7.2
50-54	14.9	15.5	15.3	17.4	5.9	7.0	2.1
55-59	8.6	9.0	8.7	11.2	3.1	3.6	1.1
60-64	5.6	6.0	5.9	6.5	1.3	1.6	N
65-75	3.9	4.1	4.0	4.7	1.2	1.5	N
No response	0.2	0.2	0.2	0.1	0.7	0.8	0.1
Geographic division:							
New England	7.9	7.8	7.9	7.3	9.1	9.2	7.9
Middle Atlantic	17.5	17.2	16.8	21.3	20.9	21.3	21.4
East North Central	13.8	13.7	13.8	13.0	15.6	15.8	14.5
West North Central	5.8	6.0	6.2	4.0	4.3	4.3	5.3
South Atlantic	18.5	18.7	18.9	17.1	16.0	14.9	16.4
East South Central	4.3	4.4	4.5	3.4	3.1	2.4	6.4
West South Central	7.9	7.9	7.9	7.5	7.6	7.9	6.9
Mountain	6.3	6.4	6.8	3.4	4.3	4.3	4.9
Pacific	17.6	17.5	16.9	22.7	18.9	19.7	16.4
Other U.S.	0.3	0.3	0.3	0.3	0.1	0.2	N

See explanatory information and SOURCE at end of table.

Table 13. Employed doctoral scientists and engineers, by demographic characteristics and citizenship status:1991

Characteristics	Total 1/	U.S. citizen			Non-U.S. citizen		
		Total	Native	Naturalized	Total	Perm res	Temp res
	[Percent distribution]						
Place of birth:							
U.S.	79.5	85.4	95.9	0.5	0.3	0.2	1.0
Canada	0.8	0.5	0.1	3.6	5.0	5.8	2.6
Latin & South America	1.1	0.6	0.1	5.1	6.6	6.3	7.7
North, Central, West Europe	2.3	1.7	0.3	13.0	10.4	10.5	9.1
Eastern Europe	1.1	0.9	N	8.1	3.5	3.7	2.4
Eastern Asia	5.9	4.2	0.2	36.9	27.8	25.1	38.4
Western Asia	4.8	2.7	0.1	23.4	32.9	35.1	23.6
Australasia 2/	0.3	0.2	N	1.5	1.8	2.0	0.7
Africa	1.0	0.6	0.1	4.8	6.6	6.5	6.5
No response	3.3	3.1	3.1	3.1	5.1	4.8	7.9

1/ Totals include individuals for whom citizenship was unspecified or from whom no response was received.

2/ Australasia comprises Australia, New Zealand, Indonesia, and the Philippines.

KEY: N = No cases reported (see NOTE below)

NOTE: All numbers in the table are estimates derived from a sample.

SOURCE: National Science Foundation/SRS, 1991 Survey of Doctorate Recipients

Table 14. Employed doctoral scientists and engineers, by demographic characteristics and employment sector: 1991

Characteristics	Total 1/ empl'd	Education		Business/industry			Government		Non-profit 2/
		Total	Univ/ 4-yr colleges	Total	Not self-empl'd	Self-empl'd	Federal civilian	State/ local	
Total (number)	437,206	206,225	195,317	157,256	118,627	38,629	27,610	10,357	29,749
	[Percent distribution]								
Sex:									
Men	81.2	79.5	80.3	84.8	89.3	70.8	85.2	79.4	70.6
Women	18.8	20.5	19.7	15.2	10.7	29.2	14.8	20.6	29.4
Race:									
White	86.9	88.4	88.3	84.0	81.4	91.8	89.9	87.1	88.6
Asian/Pacific Islander	10.2	8.2	8.4	14.1	16.8	5.7	7.0	7.2	8.4
Black	2.2	2.6	2.5	1.3	1.1	1.9	1.9	5.3	2.5
Native American	0.2	0.2	0.2	0.1	0.1	0.2	0.4	0.3	0.1
Other	0.1	0.2	0.2	0.1	0.1	0.2	0.2	N	N
No response	0.5	0.5	0.5	0.4	0.5	0.2	0.6	0.2	0.4
Ethnicity:									
Hispanic	1.9	2.1	2.1	1.4	1.3	1.7	1.7	1.6	2.0
Non-Hispanic	97.0	96.9	96.9	97.3	97.3	97.1	96.9	98.0	97.4
No response	1.1	1.0	1.0	1.3	1.3	1.2	1.4	0.4	0.6
Age:									
Under 30	1.0	1.1	1.1	1.0	1.4	N	0.8	N	1.1
30-34	9.1	9.8	10.2	8.9	11.1	2.3	6.5	4.9	10.4
35-39	16.8	16.9	17.3	17.0	19.0	10.9	12.8	16.5	19.6
40-44	19.4	17.9	17.8	20.6	20.4	21.2	18.2	26.6	22.4
45-49	20.4	18.6	18.2	22.1	20.9	25.6	25.9	21.7	19.2
50-54	14.9	15.3	15.1	14.4	14.0	15.6	17.8	15.4	12.2
55-59	8.6	9.3	9.2	8.0	7.6	9.1	9.9	7.0	6.8
60-64	5.6	6.9	7.0	4.5	3.6	7.0	4.4	4.6	4.5
65-75	3.9	4.0	4.0	3.3	1.8	8.1	3.4	3.1	4.0
No response	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.3	N
Citizenship:									
U.S. total	93.0	92.3	92.1	92.7	91.1	97.6	98.1	94.9	94.6
U.S. native-born	82.7	83.8	83.5	79.6	76.6	88.9	89.6	86.0	84.9
U.S. naturalized	10.2	8.5	8.6	13.1	14.6	8.6	8.5	8.9	9.6
Non-U.S. total	7.0	7.6	7.8	7.3	8.9	2.4	1.9	5.1	5.4
Non-U.S. perm. resident	5.4	5.8	5.9	6.0	7.2	2.3	1.4	4.0	3.9
Non-U.S. temp. resident	1.2	1.3	1.4	1.0	1.2	0.2	0.4	1.1	1.2

See explanatory information and SOURCE at end of table.

Table 14. Employed doctoral scientists and engineers, by demographic characteristics and employment sector: 1991

Characteristics	Total 1/ empl'd	Education		Business/industry			Government		Non-profit 2/
		Total	Univ/ 4-yr colleges	Total	Not self-empl'd	Self-empl'd	Federal civilian	State/ local	
	[Percent distribution]								
Geographic division:									
New England	7.9	9.3	9.5	7.2	7.0	7.7	3.5	4.0	8.6
Middle Atlantic	17.5	16.0	15.5	21.6	22.6	18.3	3.6	19.1	19.8
East North Central	13.8	15.9	16.1	13.3	14.4	10.0	4.9	9.8	13.4
West North Central	5.8	7.4	7.6	4.5	4.8	3.5	2.5	4.8	5.9
South Atlantic	18.5	15.6	15.4	14.6	14.0	16.6	58.9	17.8	17.7
East South Central	4.3	5.4	5.6	3.3	3.0	4.2	3.4	2.7	3.3
West South Central	7.9	8.3	8.2	8.5	8.9	7.2	3.7	7.2	5.8
Mountain	6.3	6.7	6.7	5.3	4.8	6.8	8.6	8.3	6.3
Pacific	17.6	15.0	14.9	21.7	20.4	25.5	10.8	25.5	19.1
Other U.S.	0.3	0.5	0.4	0.1	0.1	0.3	0.1	0.6	N
Place of birth:									
U.S.	79.5	80.5	80.3	76.4	73.8	84.2	86.8	83.7	80.7
Canada	0.8	0.9	0.9	0.8	0.8	0.7	0.5	0.7	0.6
Latin & South America	1.1	1.2	1.2	0.8	0.8	0.8	0.7	0.9	1.2
North, Central, West Europe	2.3	2.6	2.6	2.1	2.1	2.2	1.2	1.9	2.2
Eastern Europe	1.1	1.2	1.2	1.0	1.1	0.7	1.0	0.7	1.4
Eastern Asia	5.9	4.4	4.5	8.6	10.2	3.7	4.3	3.9	4.6
Western Asia	4.8	4.5	4.7	5.7	6.7	2.6	2.4	3.5	4.4
Australasia 3/	0.3	0.3	0.3	0.4	0.5	0.1	0.2	0.4	0.1
Africa	1.0	1.1	1.1	0.9	1.0	0.8	0.2	1.4	0.8
No response	3.3	3.3	3.3	3.2	2.9	4.3	2.5	2.8	4.0

1/ Totals include individuals who work in employment sectors other than education, business/industry, government, and nonprofit organizations; they also include individuals for whom no response was received.

2/ Nonprofit [organizations] include hospitals and clinics.

3/ Australasia comprises Australia, New Zealand, Indonesia, and the Philippines.

KEY: N = No cases reported (see NOTE below)

NOTE: All numbers in the table are estimates derived from a sample.

SOURCE: National Science Foundation/SRS, 1991 Survey of Doctorate Recipients

Table 15. Employed doctoral scientists and engineers, by demographic characteristics and primary work activity: 1991

Characteristics	Total empl'd	Research & development				Mgmt/administration			Teaching	Prof servs	Consulting	Other/no resp
		Total	Basic	App'd	Dvlpt/ design	Total	R&D	Other				
Total (number)	437,206	157,338	61,015	71,697	24,626	68,362	33,385	34,977	99,199	39,991	19,234	53,082
	[Percent distribution]											
Sex:												
Men	81.2	84.9	80.0	86.0	94.1	84.2	89.7	79.0	79.4	61.6	86.3	82.6
Women	18.8	15.1	20.0	14.0	5.9	15.8	10.3	21.0	20.6	38.4	13.7	17.4
Race:												
White	86.9	83.3	85.6	84.0	75.7	89.5	87.6	91.3	88.5	94.3	87.2	85.2
Asian/Pacific Islander	10.2	14.8	12.5	14.0	22.4	7.1	10.3	4.1	7.5	3.1	10.0	11.3
Black	2.2	1.2	1.1	1.3	1.3	2.7	1.3	4.1	3.2	2.1	2.1	2.2
Native American	0.2	0.2	0.1	0.2	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.1
Other	0.1	0.1	0.1	N	N	N	N	N	0.3	0.1	0.2	0.2
No response	0.5	0.5	0.5	0.4	0.5	0.4	0.6	0.3	0.3	0.3	0.3	1.1
Ethnicity:												
Hispanic	1.9	1.7	2.3	1.4	0.9	1.7	1.8	1.5	2.1	2.2	2.1	2.0
Non-Hispanic	97.0	97.4	96.6	97.8	98.1	97.4	97.1	97.6	97.1	97.3	97.3	95.0
No response	1.1	0.9	1.0	0.8	1.0	1.0	1.1	0.9	0.8	0.6	0.6	3.0
Age:												
Under 30	1.0	2.1	2.5	1.9	1.5	0.2	0.1	0.2	0.5	0.4	0.9	0.4
30-34	9.1	15.7	18.7	14.6	11.2	2.8	3.6	2.0	6.2	7.5	5.5	6.1
35-39	16.8	23.2	26.2	22.7	17.5	11.3	14.3	8.5	12.4	18.9	10.4	14.1
40-44	19.4	19.3	19.1	18.9	21.3	18.3	20.8	15.9	17.8	26.7	17.8	19.4
45-49	20.4	16.3	14.2	16.0	22.4	26.3	24.7	27.8	19.9	21.0	25.0	24.0
50-54	14.9	11.1	8.7	12.0	14.4	21.2	20.0	22.4	17.7	11.0	15.8	15.0
55-59	8.6	5.6	4.6	6.1	6.3	11.5	10.2	12.7	11.4	6.5	9.0	9.8
60-64	5.6	3.9	3.0	4.8	3.2	6.4	5.1	7.7	8.7	4.1	6.3	5.0
65-75	3.9	2.6	2.6	2.7	2.1	1.9	1.1	2.7	5.2	3.6	9.2	6.0
No response	0.2	0.3	0.3	0.3	0.1	0.1	0.1	0.1	0.2	0.2	0.3	0.2

See explanatory information and SOURCE at end of table.

BEST COPY AVAILABLE

Table15. Employed doctoral scientists and engineers, by demographic characteristics and primary work activity: 1991

[Percent distribution]

Characteristics	Total empl'd	Research & development				Mgmt/administration			Teach-ing	Prof services	Consult-ing	Other/ no resp
		Total	Basic	App'd	Devlop/ design	Total	R&D	Other				
Citizenship:												
U.S. total	93.0	89.4	88.2	90.6	88.7	97.6	96.7	98.4	93.3	98.2	93.4	93.3
U.S. native-born	82.7	77.8	79.1	79.0	71.1	87.8	84.1	91.2	84.5	91.5	82.2	81.1
U.S. naturalized	10.2	11.5	9.0	11.5	17.6	9.8	12.5	7.2	8.8	6.7	11.1	12.2
Non-U.S. total	7.0	10.6	11.8	9.4	11.3	2.4	3.3	1.6	6.7	1.8	6.6	6.5
Non-U.S. perm res	5.4	7.8	8.1	7.0	9.3	2.1	2.9	1.4	5.7	1.5	5.6	4.8
Non-U.S. temp res	1.2	2.2	2.9	1.8	1.4	0.2	0.3	0.1	0.6	0.2	0.8	1.2
Geographic division:												
New England	7.9	7.9	9.4	6.9	7.5	6.6	6.1	7.0	9.4	8.5	6.8	7.0
Middle Atlantic	17.5	17.9	17.2	18.0	19.3	15.3	15.8	14.8	17.5	19.1	17.3	18.3
East North Central	13.8	14.1	15.0	14.1	11.9	13.8	13.7	13.9	15.6	12.8	9.3	12.2
West North Central	5.8	5.2	5.8	5.3	3.4	5.4	4.1	6.6	8.1	6.2	6.1	3.8
South Atlantic	18.5	18.0	18.2	19.4	13.5	22.7	23.0	22.3	16.2	14.5	22.1	20.8
East South Central	4.3	3.7	3.9	4.0	2.2	4.6	3.7	5.4	5.7	4.1	3.0	3.9
West South Central	7.9	7.6	6.5	8.1	9.2	7.7	5.9	9.4	8.4	7.0	8.9	8.1
Mountain	6.3	6.3	5.7	7.1	5.0	6.5	7.7	5.4	6.1	6.0	6.6	6.6
Pacific	17.6	19.1	18.0	17.1	28.0	17.2	19.8	14.8	12.6	21.6	19.6	19.2
Other U.S.	0.3	0.2	0.3	0.1	N	0.3	0.2	0.4	0.5	0.2	0.2	0.2
Place of birth:												
U.S.	79.5	74.3	74.8	76.0	68.2	85.2	81.5	88.8	81.9	86.9	77.9	77.7
Canada	0.8	1.0	1.1	1.1	0.7	0.6	0.6	0.6	0.6	0.8	0.9	0.6
Latin & South America	1.1	1.1	1.4	1.0	0.6	0.6	0.6	0.5	1.1	0.9	1.8	1.3
North,Central,W Europe	2.3	2.6	3.1	2.2	2.1	2.1	2.1	2.1	2.1	2.4	2.3	1.9
Eastern Europe	1.1	1.3	1.7	1.0	1.0	0.7	0.9	0.5	1.2	0.9	1.4	1.0
Eastern Asia	5.9	9.1	7.6	8.5	14.8	3.8	5.8	1.9	3.5	1.6	6.1	6.7
Western Asia	4.8	5.8	5.0	5.8	7.7	3.5	4.5	2.5	5.1	1.3	4.7	5.5
Australasia 1/	0.3	0.4	0.4	0.3	0.4	0.3	0.5	0.2	0.2	0.2	0.3	0.4
Africa	1.0	0.9	0.7	0.7	1.6	0.7	0.6	0.8	1.5	0.6	1.1	1.2
No response	3.3	3.6	4.2	3.4	2.9	2.5	2.8	2.1	2.7	4.3	3.6	3.6

1/ Australasia comprises Australia, New Zealand, Indonesia, and the Philippines.

KEY: N = No counts reported (see NOTE below)

NOTE: All numbers in the table are estimates derived from a sample.

SOURCE: National Science Foundation/SRS, 1991 Survey of Doctorate Recipients

Table 16. Employed doctoral scientists and engineers, by demographic characteristics, race/ethnicity, and sex: 1991

Characteristics	Total 1/			White			Asian/Pacific Islander		
	Total	Male	Female	Total	Male	Female	Total	Male	Female
Total (number)	437,206	355,043	82,163	379,762	307,363	72,399	44,640	38,439	6,201
	[Percent distribution]								
Age:									
Under 30	1.0	0.9	1.4	0.9	0.8	1.3	2.2	2.1	3.1
30-34	9.1	8.3	12.7	8.6	7.7	12.4	14.1	13.2	19.4
35-39	16.8	15.6	22.1	16.3	15.0	21.9	21.2	20.8	23.8
40-44	19.4	18.4	24.1	19.3	18.1	24.3	19.3	19.5	18.4
45-49	20.4	20.8	18.6	20.8	21.3	18.9	17.2	17.4	16.0
50-54	14.9	16.1	9.5	15.2	16.6	9.4	12.6	13.0	10.3
55-59	8.6	9.3	5.5	8.7	9.5	5.4	7.6	7.8	6.4
60-64	5.6	6.1	3.8	5.9	6.3	3.9	3.8	4.0	2.2
65-75	3.9	4.3	2.0	4.1	4.6	2.2	1.9	2.1	0.4
No response	0.2	0.2	0.3	0.2	0.2	0.3	0.1	0.1	0.1
Citizenship:									
U.S. total	93.0	92.6	94.7	96.9	96.8	97.2	62.6	62.0	66.5
U.S. native-born	82.7	81.8	86.8	91.8	91.5	92.9	8.6	7.6	14.8
U.S. naturalized	10.2	10.8	7.9	5.1	5.3	4.2	53.9	54.3	51.7
Non-U.S. total	7.0	7.4	5.3	3.1	3.2	2.8	37.4	38.0	33.5
Non-U.S. perm resident	5.4	5.7	4.1	2.5	2.5	2.3	28.0	28.7	23.9
Non-U.S. temp resident	1.2	1.2	1.0	0.4	0.4	0.3	7.0	6.8	8.1
Geographic division:									
New England	7.9	7.5	9.7	8.1	7.6	10.1	7.2	6.9	8.9
Middle Atlantic	17.5	17.0	19.6	17.1	16.5	19.7	21.4	21.5	20.8
East North Central	13.8	14.0	12.9	13.9	14.1	12.8	14.0	13.8	14.8
West North Central	5.8	5.9	5.7	6.1	6.2	5.9	4.1	3.9	5.3
South Atlantic	18.5	18.6	18.3	18.6	18.7	18.2	15.1	15.3	13.7
East South Central	4.3	4.6	3.2	4.4	4.7	3.2	3.1	3.3	2.0
West South Central	7.9	8.2	6.3	7.8	8.2	6.3	8.1	8.6	4.9
Mountain	6.3	6.5	5.3	6.7	7.0	5.4	3.7	3.6	4.1
Pacific	17.6	17.4	18.6	17.0	16.7	18.0	23.3	23.0	25.3
Other U.S.	0.3	0.3	0.4	0.3	0.3	0.4	0.1	N	0.2
Place of birth:									
U.S.	79.5	78.8	82.5	88.3	88.2	88.6	7.4	6.4	13.6
Canada	0.8	0.8	0.9	0.9	0.9	1.0	0.1	0.1	N
Latin & South America	1.1	1.0	1.4	1.0	0.9	1.2	0.2	0.2	0.3
North, Central, West Europe	2.3	2.3	2.1	2.6	2.6	2.4	0.3	0.3	0.2
Eastern Europe	1.1	1.2	0.9	1.3	1.3	1.0	N	N	0.1
Eastern Asia	5.9	6.1	4.9	0.2	0.2	0.2	56.2	55.4	61.4
Western Asia	4.8	5.3	2.4	1.9	2.0	1.1	30.7	32.7	18.1
Australasia 2/	0.3	0.3	0.5	0.2	0.1	0.2	1.8	1.4	4.4
Africa	1.0	1.1	0.5	0.6	0.7	0.3	0.2	0.1	0.8
No response	3.3	3.2	3.9	3.2	3.0	3.9	3.0	3.3	1.2

See explanatory information and SOURCE at end of table.

BEST COPY AVAILABLE

Table 16. Employed doctoral scientists and engineers, by demographic characteristics, race/ethnicity and sex: 1991

Characteristics	Black 1/			Native American			Hispanic		
	Total	Male	Female	Total	Male	Female	Total	Male	Female
Total (number)	9,409	6,449	2,960	813	613	200	8,161	6,355	1,806
	[Percent distribution]								
Age:									
Under 30	0.6	0.6	0.8	0.5	0.7	N	0.7	0.5	1.3
30-34	8.0	7.3	9.5	7.5	6.9	9.5	12.1	11.4	14.6
35-39	17.4	15.1	22.3	20.4	20.1	21.5	24.1	21.6	32.8
40-44	24.5	21.3	31.3	26.6	27.2	24.5	20.6	19.5	24.4
45-49	18.9	20.0	16.6	18.1	15.7	25.5	16.1	16.4	15.1
50-54	12.5	14.0	9.2	10.9	11.9	8.0	13.8	16.1	5.6
55-59	8.8	10.4	5.2	8.2	10.1	2.5	5.8	6.6	2.8
60-64	5.6	6.4	4.0	5.7	7.5	N	3.9	4.3	2.5
65-75	3.1	4.3	0.5	N	N	N	2.6	3.1	0.7
No response	0.6	0.7	0.4	2.1	N	8.5	0.4	0.4	0.2
Citizenship:									
U.S. total	81.9	76.2	94.4	100.0	100.0	100.0	79.8	78.5	84.1
U.S. native-born	72.6	64.7	89.7	97.7	96.9	100.0	56.5	54.9	62.1
U.S. naturalized	9.3	11.5	4.7	2.3	3.1	N	23.2	23.5	22.0
Non-U.S. total	18.1	23.8	5.6	N	N	N	20.2	21.5	15.9
Non-U.S. perm. resident	15.0	19.8	4.7	N	N	N	15.7	16.6	12.8
Non-U.S. temp. resident	2.6	3.4	0.8	N	N	N	2.9	3.2	2.0
Geographic division:									
New England	4.7	5.1	4.0	4.2	5.5	N	8.6	9.0	7.3
Middle Atlantic	14.5	14.2	15.3	9.2	10.0	7.0	12.3	12.3	12.1
East North Central	13.3	13.7	12.5	7.9	9.3	3.5	9.4	9.6	8.9
West North Central	3.7	3.9	3.5	1.7	2.3	N	4.4	5.0	2.4
South Atlantic	32.6	33.3	31.1	18.1	21.0	9.0	19.0	18.7	19.8
East South Central	6.6	7.5	4.5	3.6	4.1	2.0	2.6	3.0	1.4
West South Central	8.1	7.7	9.0	23.6	24.6	20.5	10.5	11.3	7.5
Mountain	2.7	2.8	2.5	11.9	6.5	28.5	6.8	5.9	10.1
Pacific	13.3	11.4	17.3	19.8	16.6	29.5	18.1	17.0	22.0
Other U.S.	0.5	0.6	0.3	N	N	N	8.3	8.2	8.5

See explanatory information and SOURCE at end of table.

Table 16. Employed doctoral scientists and engineers, by demographic characteristics, race/ethnicity and sex: 1991

Characteristics	Black 1/			Native American			Hispanic		
	Total	Male	Female	Total	Male	Female	Total	Male	Female
	[Percent distribution]								
Place of birth:									
U.S.	68.1	62.3	81.0	84.6	84.3	85.5	54.7	52.8	61.2
Canada	0.1	0.2	N	1.0	1.3	N	N	N	N
Latin & South America	5.3	5.2	5.4	3.8	5.1	N	37.6	38.5	34.4
North, Central, West Europe	0.4	0.4	0.4	N	N	N	3.5	4.3	0.8
Eastern Europe	N	N	N	N	N	N	N	N	0.2
Eastern Asia	N	N	N	N	N	N	0.4	0.5	0.2
Western Asia	N	N	N	N	N	N	0.5	0.7	N
Australasia 2/	N	N	N	N	N	N	1.0	0.7	2.2
Africa	20.3	27.7	4.4	N	N	N	0.3	0.4	N
No response	5.7	4.2	8.9	10.6	9.3	14.5	1.9	2.2	0.9

1/ Totals include individuals whose race was specified as "other" and individuals from whom no response was received.

2/ Australasia comprises Australia, New Zealand, Indonesia, and the Philippines.

3/ Individuals who are included in the ethnic category "Hispanic" also may have been included in one of the race categories.

KEY: No cases reported (see NOTE below)

NOTE: All numbers in the table are estimates derived from a sample.

SOURCE: National Science Foundation/SRS, 1991 Survey of Doctorate Recipients

Table 17. Employed doctoral scientists and engineers, by field of doctorate and employment sector: 1991

Field of doctorate	Total 1/ empl'd	Education		Business/industry			Government		Non-profit 2/
		Total	Univ/4-yr coll	Total	Not self-empl'd	Self-empl'd	Federal civilian	State/ local	
Total	437,206	206,225	195,317	157,256	118,627	38,629	27,610	10,357	29,749
Sciences	367,440	183,278	172,540	117,650	83,070	34,580	23,794	9,948	27,512
Physical sciences	80,872	29,368	27,716	42,086	38,302	3,784	5,006	604	3,155
Chemistry	48,967	14,834	13,784	29,751	27,142	2,609	2,069	519	1,422
Physics/astronomy	31,905	14,534	13,932	12,335	11,160	1,175	2,937	85	1,733
Mathematical sciences	20,049	14,280	13,832	4,094	3,481	613	945	57	505
Mathematics	16,546	12,248	11,810	3,129	2,653	476	690	N	311
Statistics/probability	3,503	2,032	2,022	965	828	137	255	57	194
Computer/info spec	5,376	2,494	2,453	2,638	2,503	135	65	N	112
Environmental sciences	13,263	5,508	5,370	3,729	3,138	591	2,568	777	473
Earth sciences	9,745	3,937	3,831	2,959	2,542	417	1,930	689	156
Oceanography	1,920	899	867	502	403	99	371	60	68
Atmospheric sciences	1,598	672	672	268	193	75	267	28	249
Life sciences	113,743	62,767	59,915	29,619	22,942	6,677	9,060	2,654	8,146
Biological sciences	78,059	44,726	42,565	18,672	14,638	4,034	6,079	1,818	5,836
Agricultural sciences	16,637	8,277	7,934	5,416	4,193	1,223	1,964	356	408
Medical sciences	19,047	9,764	9,416	5,531	4,111	1,420	1,017	480	1,902
Psychology	65,672	24,850	21,395	24,080	5,949	18,131	1,775	2,692	11,385
Social sciences	68,465	44,011	41,859	11,404	6,755	4,649	4,375	3,164	3,736
Economics	19,241	12,098	11,891	3,327	2,116	1,211	1,938	492	489
Sociology/anthropology	18,094	12,131	11,416	2,814	1,630	1,184	872	563	1,368
Other social sciences	31,130	19,782	18,552	5,263	3,009	2,254	1,565	2,109	1,879
Engineering	69,766	22,947	22,777	39,606	35,557	4,049	3,816	409	2,237
Aeronautical/astronautical	3,087	1,059	1,059	1,664	1,400	264	247	N	83
Chemical	10,633	2,369	2,358	7,427	6,968	459	296	N	399
Civil	7,512	3,068	3,040	3,393	2,690	703	609	203	187
Electrical/electronic	16,994	5,458	5,427	10,116	9,516	600	688	10	590
Materials science	6,230	1,238	1,238	4,545	4,126	419	250	N	126
Mechanical	8,680	2,931	2,891	4,773	4,133	640	600	33	272
Nuclear	1,903	553	533	999	966	33	118	44	189
Systems design	1,561	704	704	726	633	93	38	14	79
Other	13,166	5,567	5,527	5,963	5,125	838	970	105	312

1/ Totals include individuals who work in employment sectors other than education, business/industry, government, and nonprofit organizations; they also include individuals for whom no response was received.

2/ Nonprofit [organizations] include hospitals and clinics.

KEY: N = No cases reported (see NOTE below)

NOTE: All numbers in the table are estimates derived from a sample.

SOURCE: National Science Foundation/SRS, 1991 Survey of Doctorate Recipients

Table 18. Employed doctoral scientists and engineers, by employment-related characteristics, race/ethnicity, and sex: 1991

Characteristics	Total 1/			White			Asian/Pacific Islander		
	Total	Male	Female	Total	Male	Female	Total	Male	Female
Total (number)	437,206	355,043	82,163	379,762	307,363	72,399	44,640	38,439	6,201
	[Percent distribution]								
Type of employment:									
Science/engineering	89.7	90.1	88.0	89.5	89.8	88.0	93.1	93.4	90.9
Other/unknown field	10.3	9.9	12.0	10.5	10.2	12.0	6.9	6.6	9.1
Sector of employment:									
Business/industry, total	36.0	37.5	29.1	34.8	36.1	29.1	49.6	51.9	34.8
Not self-employed	27.1	29.8	15.4	25.4	28.0	14.5	44.7	47.2	29.0
Self-employed	8.8	7.7	13.7	9.3	8.1	14.5	4.9	4.7	5.9
Educational institution	47.2	46.2	51.4	48.0	47.2	51.5	38.0	36.7	46.2
Univ./4-yr college	44.7	44.2	46.7	45.4	45.1	46.8	36.7	35.8	42.6
Other	2.5	2.0	4.7	2.6	2.1	4.7	1.3	0.9	3.6
Federal Govt. (civilian)	6.3	6.6	5.0	6.5	6.9	4.9	4.3	4.1	5.5
State/Local govt	2.4	2.3	2.6	2.4	2.3	2.5	1.7	1.5	2.8
Hospitals/Clinics	3.2	2.6	5.8	3.2	2.6	5.9	2.5	2.0	5.7
Other nonprofits	3.6	3.3	4.9	3.7	3.4	5.0	3.1	3.0	3.6
Other/no response	1.4	1.4	1.2	1.4	1.4	1.1	0.9	0.8	1.4
Federal support:									
Receiving support	40.7	41.8	36.2	41.5	42.7	36.2	36.3	36.2	37.3
Not receiving support	55.7	55.0	59.0	55.1	54.2	59.1	60.0	60.2	59.1
Status unknown/no response	3.5	3.2	4.8	3.4	3.1	4.8	3.6	3.6	3.6
Primary work activity:									
Research and development	36.0	37.6	28.9	34.5	36.1	27.8	52.1	52.9	46.8
Basic research	14.0	13.7	14.9	13.7	13.6	14.5	17.1	16.1	23.7
Applied research	16.4	17.4	12.2	15.9	16.8	11.9	22.5	23.4	17.0
Development	5.6	6.5	1.8	4.9	5.7	1.4	12.4	13.4	6.1
Management/administration	15.6	16.2	13.1	16.1	16.8	13.2	10.9	11.3	8.4
R&D	7.6	8.4	4.2	7.7	8.5	4.2	7.7	8.2	4.6
Other	8.0	7.8	8.9	8.4	8.3	9.0	3.2	3.1	3.8
Teaching	22.7	22.2	24.8	23.1	22.7	25.1	16.6	16.3	18.0
Professional services	9.1	6.9	18.7	9.9	7.5	20.0	2.8	2.1	6.8
Report, statistical, and computing activity	3.6	3.7	3.4	3.6	3.6	3.2	4.3	4.2	5.0
Consulting	4.4	4.7	3.2	4.4	4.7	3.2	4.3	4.5	3.1
Other/no response	8.5	8.7	7.8	8.3	8.6	7.4	9.1	8.7	11.9

See explanatory information and SOURCE at end of table.

BEST COPY AVAILABLE

Table 18. Employed doctoral scientists and engineers, by employment-related characteristics, race/ethnicity, and sex: 1991

Characteristics	Black			Native American			Hispanic 2/		
	Total	Male	Female	Total	Male	Female	Total	Male	Female
Total (number)	9,409	6,449	2,960	813	613	200	8,161	6,355	1,806
	[Percent distribution]								
Type of employment:									
Science/engineering	84.7	84.9	84.4	91.6	92.5	89.0	89.5	91.1	83.8
Other/unknown field	15.3	15.1	15.6	8.4	7.5	11.0	10.5	8.9	16.2
Sector of employment:									
Business/Industry, total	21.9	23.1	19.3	24.8	24.0	27.5	27.5	29.0	22.0
Not self-employed	14.2	16.9	8.4	13.2	13.4	12.5	19.6	21.7	12.3
Self-employed	7.7	6.1	10.9	11.7	10.6	15.0	7.9	7.3	9.7
Educational institution	56.4	55.1	59.4	51.7	51.7	51.5	53.9	52.7	58.1
Univ./4-yr college	52.1	51.8	52.8	50.9	50.7	51.5	50.8	50.5	51.6
Other	4.3	3.3	6.6	0.7	1.0	N	3.2	2.2	6.5
Federal Govt. (civilian)	5.5	5.5	5.7	14.4	17.3	5.5	5.6	6.4	2.9
State/Local govt.	5.8	6.5	4.5	3.6	2.9	5.5	2.1	1.9	2.5
Hospitals/clinics	3.8	3.5	4.4	1.4	1.0	2.5	4.9	4.2	7.6
Other nonprofits	4.2	4.1	4.6	2.3	3.1	N	2.5	2.3	2.9
Other/no response	2.3	2.4	2.1	1.8	N	7.5	3.6	3.5	3.9
Federal support:									
Receiving support	33.7	33.2	34.8	42.3	39.3	51.5	40.7	44.2	28.5
Not receiving support	62.0	62.8	60.3	56.2	60.7	42.5	55.6	53.2	64.3
Status unknown/no response	4.2	4.0	4.9	1.5	N	6.0	3.6	2.6	7.3
Primary work activity:									
Research and development	20.9	22.0	18.3	33.8	37.8	21.5	32.6	35.1	23.7
Basic research	7.2	7.2	7.2	10.7	12.7	4.5	17.6	18.4	14.5
Applied research	10.1	10.5	9.4	21.3	22.7	17.0	12.3	13.4	8.6
Development	3.5	4.3	1.8	1.8	2.4	N	2.7	3.3	0.7
Management/administration	19.6	19.2	20.4	19.2	19.1	19.5	13.9	14.8	10.7
R&D	4.5	5.1	3.1	9.1	10.8	4.0	7.4	8.6	3.2
Other	15.1	14.0	17.3	10.1	8.3	15.5	6.5	6.2	7.5
Teaching	34.2	34.3	34.0	29.2	31.3	22.5	25.1	23.3	31.3
Professional services	8.8	7.7	11.1	8.6	2.9	26.0	10.6	7.7	21.1
Report, statistical, and computing activity	3.8	3.1	5.6	0.6	0.8	N	3.9	4.8	0.6
Consulting	4.4	4.5	4.1	5.9	6.0	5.5	5.0	5.8	2.2
Other/no response	8.4	9.2	6.6	2.7	2.0	5.0	9.0	8.6	10.5

1/ Totals include individuals whose race was specified as "other" and individuals from whom no response was received.

2/ Individuals who are included in the ethnic category "Hispanic" also may have been included in one of the race categories.

KEY: N = No cases reported (see NOTE below)

NOTE: All numbers in the table are estimates derived from a sample.

SOURCE: National Science Foundation/SRS, 1991 Survey of Doctorate Recipients

Table 19. Employed doctoral scientists and engineers, by selected employment-related characteristics and employment sector: 1991

Characteristics	Total 1/ empl'd	Education		Business/industry			Government		Nonprofit 2/
		Total	Univ/4-yr colleges	Total	Not self-empl'd	Self-empl'd	Federal civilian	State/ local	
Total (number)	437,206	206,225	195,317	157,256	118,627	38,629	27,610	10,357	29,749
	[Percent distribution]								
Field of doctorate:									
Sciences	84.0	88.9	88.3	74.8	70.0	89.5	86.2	96.1	92.5
Physical sciences	18.5	14.2	14.2	26.8	32.3	9.8	18.1	5.8	10.6
Chemistry	11.2	7.2	7.1	18.9	22.9	6.8	7.5	5.0	4.8
Physics/astronomy	7.3	7.0	7.1	7.8	9.4	3.0	10.6	0.8	5.8
Mathematical sciences	4.6	6.9	7.1	2.6	2.9	1.6	3.4	0.6	1.7
Mathematics	3.8	5.9	6.0	2.0	2.2	1.2	2.5	N	1.0
Statistics/probability	0.8	1.0	1.0	0.6	0.7	0.4	0.9	0.6	0.7
Computer/info spec	1.2	1.2	1.3	1.7	2.1	0.3	0.2	N	0.4
Environmental sciences	3.0	2.7	2.7	2.4	2.6	1.5	9.3	7.5	1.6
Earth sciences	2.2	1.9	2.0	1.9	2.1	1.1	7.0	6.7	0.5
Oceanography	0.4	0.4	0.4	0.3	0.3	0.3	1.3	0.6	0.2
Atmospheric sciences	0.4	0.3	0.3	0.2	0.2	0.2	1.0	0.3	0.8
Life sciences	26.0	30.4	30.7	18.8	19.3	17.3	32.8	25.6	27.4
Biological sciences	17.9	21.7	21.8	11.9	12.3	10.4	22.0	17.6	19.6
Agricultural sciences	3.8	4.0	4.1	3.4	3.5	3.2	7.1	3.4	1.4
Medical sciences	4.4	4.7	4.8	3.5	3.5	3.7	3.7	4.6	6.4
Psychology	15.0	12.0	11.0	15.3	5.0	46.9	6.4	26.0	38.3
Social sciences	15.7	21.3	21.4	7.3	5.7	12.0	15.8	30.5	12.6
Economics	4.4	5.9	6.1	2.1	1.8	3.1	7.0	4.8	1.6
Sociology/anthropology	4.1	5.9	5.8	1.8	1.4	3.1	3.2	5.4	4.6
Other social sciences	7.1	9.6	9.5	3.3	2.5	5.8	5.7	20.4	6.3
Engineering	16.0	11.1	11.7	25.2	30.0	10.5	13.8	3.9	7.5
Aeronautical/astronautical	0.7	0.5	0.5	1.1	1.2	0.7	0.9	N	0.3
Chemical	2.4	1.1	1.2	4.7	5.9	1.2	1.1	N	1.3
Civil	1.7	1.5	1.6	2.2	2.3	1.8	2.2	2.0	0.6
Electrical/electronic	3.9	2.6	2.8	6.4	8.0	1.6	2.5	0.1	2.0
Materials science	1.4	0.6	0.6	2.9	3.5	1,1	0.9	N	0.4
Mechanical	2.0	1.4	1.5	3.0	3.5	1.7	2.2	0.3	0.9
Nuclear	0.4	0.3	0.3	0.6	0.8	0.1	0.4	0.4	0.6
Systems design	0.4	0.3	0.4	0.5	0.5	0.2	0.1	0.1	0.3
Other	3.0	2.7	2.8	3.8	4.3	2.2	3.5	1.0	1.0

See explanatory information and SOURCE at end of table.

Table 19. Employed doctoral scientists and engineers, by selected employment-related characteristics and employment sector: 1991

[Percent distribution]

Characteristics	Total 1/ empl'd	Education		Business/industry			Government		Nonprofit 2/
		Total	Univ/4-yr colleges	Total	Not self-empl'd	Self-empl'd	Federal civilian	State/ local	
Years of prof. experience:									
Less than 5	15.4	16.3	16.3	13.2	14.2	10.3	13.4	16.9	21.4
5-9	18.8	18.4	18.3	18.6	19.0	17.5	14.8	26.5	23.6
10-14	18.2	16.8	16.4	20.0	19.3	22.0	17.9	20.5	18.3
15-19	16.4	14.8	14.7	17.7	17.6	18.0	21.3	18.6	15.9
20-24	15.1	15.5	15.6	15.2	15.8	13.5	19.0	10.1	10.0
25-29	7.5	9.0	9.2	6.7	7.1	5.5	7.2	3.5	4.8
30-34	3.9	4.7	4.8	3.4	3.2	3.8	3.3	2.4	2.7
35 or more	2.6	2.9	2.9	2.6	1.8	5.0	1.6	1.0	1.7
No response	2.2	1.7	1.6	2.6	2.0	4.3	1.5	0.4	1.5
Primary work activity:									
Research and development	36.0	34.3	36.1	38.8	48.4	9.2	50.8	18.9	29.3
Basic research	14.0	22.4	23.7	3.1	3.8	1.1	18.4	5.2	13.8
Applied research	16.4	11.3	11.9	21.9	27.5	4.6	29.7	11.3	12.8
Development	5.6	0.5	0.6	13.8	17.1	3.5	2.6	2.3	2.6
Management/administration	15.6	10.7	10.4	17.9	22.3	4.3	27.6	31.0	20.7
R&D	7.6	1.9	1.9	13.4	17.1	1.9	19.3	6.5	6.3
Other	8.0	8.8	8.5	4.5	5.2	2.4	8.3	24.5	14.4
Teaching	22.7	47.2	46.4	0.5	0.3	1.1	1.1	1.7	1.8
Professional services	9.1	3.5	2.9	12.7	1.7	46.3	2.7	14.2	34.2
Report, statistical, and computing activity	3.6	1.2	1.2	5.9	6.5	3.9	5.8	13.1	3.4
Consulting	4.4	0.4	0.3	10.5	7.7	19.0	1.6	3.7	3.0
Other/no response	8.5	2.7	2.7	13.8	13.0	16.3	10.4	17.3	7.6

1/ Totals include individuals who work in employment sectors other than education, business/industry, government, and nonprofit organizations; they also include individuals for whom no response was received.

2/ Nonprofit [organizations] include hospitals and clinics.

KEY: No cases reported (see NOTE below)

NOTE: All numbers in the table are estimates derived from a sample.

SOURCE: National Science Foundation/SRS, 1991 Survey of Doctorate Recipients

Table 20. Employed doctoral scientists and engineers, by selected employment-related characteristics and primary work activity: 1991

Characteristics	Total empl'd	Research & development				Mgmt/administration of--			Teaching	Prof services	Consulting	Other/ no resp
		Total	Basic	Applied	Dvlpt/ design	Total	R&D	Other				
Total (number)	437,206	157,338	61,015	71,697	24,626	68,362	33,385	34,977	99,199	39,991	19,234	53,082
	[Percent distribution]											
Field of degree:												
Sciences	84.0	80.5	93.9	78.2	53.9	80.8	73.9	87.5	88.1	99.0	72.1	84.3
Physical sciences	18.5	24.6	19.8	27.6	27.9	21.0	30.7	11.8	13.4	2.8	13.8	20.2
Chemistry	11.2	14.2	9.6	17.8	15.0	13.6	19.8	7.6	7.8	1.5	9.7	13.4
Physics/astronomy	7.3	10.4	10.1	9.8	12.9	7.5	11.0	4.2	5.6	1.3	4.1	6.8
Mathematical sciences	4.6	3.8	4.6	2.9	4.2	2.7	1.8	3.5	9.1	0.4	3.2	4.7
Mathematics	3.8	3.1	3.9	2.0	3.9	2.2	1.3	3.0	7.9	0.4	2.2	3.5
Statistics/probability	0.8	0.7	0.7	0.8	0.2	0.5	0.5	0.5	1.2	N	1.0	1.2
Computer/info spec	1.2	1.7	1.5	1.6	2.9	1.1	1.4	0.9	1.0	0.1	0.6	1.4
Environmental sciences	3.0	3.6	4.3	3.9	0.8	3.0	3.6	2.4	2.8	0.3	5.1	3.2
Earth sciences	2.2	2.3	2.6	2.7	0.5	2.3	2.8	1.8	2.4	0.2	3.7	2.7
Oceanography	0.4	0.8	1.1	0.6	0.2	0.3	0.3	0.2	0.2	0.1	0.8	0.3
Atmospheric sciences	0.4	0.5	0.6	0.6	0.2	0.4	0.5	0.4	0.2	N	0.6	0.3
Life sciences	26.0	33.1	49.4	26.7	11.5	25.2	26.1	24.4	20.4	18.6	17.3	25.2
Biological sciences	17.9	24.1	41.5	15.4	6.5	15.9	17.6	14.3	14.5	11.7	9.7	15.8
Agricultural sciences	3.8	4.7	3.0	6.8	3.0	3.9	3.6	4.1	2.3	0.9	3.9	6.1
Medical sciences	4.4	4.3	5.0	4.6	2.0	5.4	4.9	5.9	3.6	6.1	3.7	3.4
Psychology	15.0	5.4	6.2	5.3	3.7	11.9	3.9	19.5	11.3	73.4	15.3	10.6
Social sciences	15.7	8.3	8.2	10.2	2.9	15.9	6.4	25.0	30.1	3.4	16.8	19.1
Economics	4.4	3.1	2.5	4.4	0.9	3.9	2.0	5.7	7.7	0.3	6.2	5.1
Sociology/anthropology	4.1	2.1	2.4	2.5	0.3	4.5	1.9	6.9	8.3	1.2	2.5	4.7
Other social sciences	7.1	3.0	3.2	3.3	1.7	7.5	2.5	12.4	14.1	1.9	8.0	9.2
Engineering	16.0	19.5	6.1	21.8	46.1	19.2	26.1	12.5	11.9	1.0	27.9	15.7
Aeronautical/ astronautical	0.7	1.0	0.3	1.2	2.3	0.8	1.5	0.1	0.6	N	0.7	0.3
Chemical	2.4	3.3	0.8	3.9	7.6	3.2	4.0	2.5	1.2	0.1	3.3	2.7
Civil	1.7	1.1	0.4	1.5	1.9	1.7	1.9	1.6	2.1	0.2	7.7	1.7
Electrical/electronic	3.9	5.3	1.3	5.2	15.6	4.9	7.1	2.9	2.9	0.2	4.5	2.6
Materials science	1.4	2.1	0.7	2.5	4.0	1.8	2.8	0.8	0.5	N	1.5	1.9
Mechanical	2.0	2.4	0.8	2.3	6.4	2.3	3.4	1.3	1.7	0.1	2.7	2.1
Nuclear	0.4	0.6	0.2	0.7	1.3	0.5	0.9	0.1	0.1	N	0.8	0.7
Systems design	0.4	0.4	0.1	0.5	1.0	0.4	0.5	0.2	0.3	N	0.9	0.3
Other	3.0	3.3	1.5	3.9	5.9	3.5	4.0	3.1	2.5	0.4	5.6	3.4
Years of prof. experience:												
Less than 5	15.4	21.2	24.6	20.4	14.7	5.6	4.2	7.0	12.5	21.1	11.3	13.4
5-9	18.8	22.7	24.2	22.5	19.6	12.7	12.7	12.7	16.3	23.9	16.2	16.9
10-14	18.2	18.2	17.6	18.3	19.4	18.8	20.4	17.2	16.7	22.4	17.3	17.1
15-19	16.4	13.5	12.4	12.8	18.0	22.3	23.3	21.4	16.2	16.4	17.0	17.9
20-24	15.1	12.1	9.6	12.4	17.6	21.9	22.5	21.3	18.0	8.3	19.0	13.1

See explanatory information and SOURCE at end of table.

BEST COPY AVAILABLE

Table 20. Employed doctoral scientists and engineers, by selected employment-related characteristics and primary work activity: 1991

[Percent distribution]

Characteristics	Total empl'd	Research & development				Mgmt/administration of--			Teaching	Prof services	Consulting	Other/ no resp
		Total	Basic	Applied	Dvlpt/ design	Total	R&D	Other				
25-29	7.5	6.1	5.0	7.2	5.7	10.9	10.3	11.4	10.6	3.1	6.2	5.6
30-34	3.9	3.0	3.1	3.0	2.6	4.9	3.9	6.0	5.4	2.4	4.5	3.3
35 or more	2.6	2.4	2.6	2.4	1.4	1.9	1.7	2.0	3.1	1.1	7.1	2.4
No response	2.2	0.9	0.8	1.0	1.0	1.0	1.0	1.0	1.2	1.4	1.5	10.3
Sector of employment:												
Business/industry, total	36.0	38.8	8.0	48.1	87.9	41.1	63.1	20.2	0.8	49.8	85.7	58.3
Not self-employed	27.1	36.5	7.4	45.6	82.4	38.7	60.9	17.6	0.3	5.0	47.7	43.7
Self-employed	8.8	2.3	0.7	2.5	5.5	2.4	2.2	2.7	0.4	44.7	38.1	14.7
Educational institution	47.2	44.9	75.8	32.5	4.5	32.3	11.7	51.9	98.1	18.3	4.4	15.1
Univ./4-yr college	44.7	44.8	75.8	32.4	4.4	29.8	11.4	47.4	91.3	13.9	3.5	14.3
Other	2.5	0.1	N	0.2	0.1	2.5	0.3	4.5	6.8	4.4	0.9	0.8
Federal Govt. (civilian)	6.3	8.9	8.3	11.5	3.0	11.1	15.9	6.5	0.3	1.9	2.3	8.5
State/local govt	2.4	1.2	0.9	1.6	1.0	4.7	2.0	7.3	0.2	3.7	2.0	5.9
Hospitals/clinics	3.2	1.1	1.5	0.9	0.9	3.0	0.5	5.4	0.2	21.7	1.0	2.0
Other nonprofits	3.6	4.4	5.3	4.4	2.3	6.0	5.1	6.8	0.4	3.7	3.7	4.2
Other/no response	1.4	0.6	0.2	1.0	0.5	1.8	1.7	1.9	0.1	0.9	0.8	6.0

KEY: N = No cases reported (see NOTE below)

NOTE: All numbers in the table are estimates derived from a sample.

SOURCE: National Science Foundation/SRS, 1991 Survey of Doctorate Recipients

Table 21. Employed doctoral scientists and engineers, by selected employment-related characteristics and broad field of doctorate: 1991

Characteristics	Total	All sciences	Physical sciences	Math sciences	Comp/info spec	Environ sciences	Life sciences	Psycho-logy	Social sciences	All engineering
Total (number)	437,206	367,440	80,872	20,049	5,376	13,263	113,743	65,672	68,465	69,766
	[Percent distribution]									
Years of prof. experience:										
Less than 5	15.4	15.2	12.3	10.1	31.1	15.0	17.0	17.0	14.3	16.3
5-9	18.8	19.2	15.1	14.5	26.8	17.1	21.1	21.7	19.9	16.4
10-14	18.2	18.7	14.8	16.3	17.9	20.0	19.2	21.6	20.2	15.3
15-19	16.4	16.2	14.5	18.4	13.3	18.8	15.6	15.8	18.8	17.5
20-24	15.1	14.5	18.1	21.5	7.4	14.9	13.6	11.2	13.7	17.7
25-29	7.5	7.2	10.9	9.3	1.5	7.7	6.2	5.3	6.0	9.4
30-34	3.9	4.0	6.7	5.1	N	2.9	3.3	3.3	2.8	3.2
35 or more	2.6	2.6	5.4	2.2	N	1.6	2.1	1.5	1.9	2.2
No response	2.2	2.3	2.1	2.7	2.0	2.0	2.1	2.6	2.5	2.0
Sector of employment:										
Business/industry, total	36.0	32.0	52.0	20.4	49.1	28.1	26.0	36.7	16.7	56.8
Not self-employed	27.1	22.6	47.4	17.4	46.6	23.7	20.2	9.1	9.9	51.0
Self-employed	8.8	9.4	4.7	3.1	2.5	4.5	5.9	27.6	6.8	5.8
Educational institution	47.2	49.9	36.3	71.2	46.4	41.5	55.2	37.8	64.3	32.9
Univ./4-yr college	44.7	47.0	34.3	69.0	45.6	40.5	52.7	32.6	61.1	32.6
Other	2.5	2.9	2.0	2.2	0.8	1.0	2.5	5.3	3.1	0.2
Federal Govt. (civilian)	6.3	6.5	6.2	4.7	1.2	19.4	8.0	2.7	6.4	5.5
State/local govt	2.4	2.7	0.7	0.3	N	5.9	2.3	4.1	4.6	0.6
Hospitals/clinics	3.2	3.7	0.9	0.2	0.6	N	3.5	12.8	0.6	0.5
Other nonprofits	3.6	3.8	3.0	2.3	1.5	3.6	3.6	4.5	4.9	2.8
Other/no response	1.4	1.4	0.8	0.8	1.2	1.6	1.3	1.4	2.6	1.1
Primary work activity:										
Research & development	36.0	34.5	47.9	29.5	51.1	42.5	45.8	12.9	19.1	44.0
Basic research	14.0	15.6	14.9	14.1	16.6	19.8	26.5	5.7	7.3	5.4
Applied research	16.4	15.3	24.4	10.3	21.0	21.2	16.8	5.8	10.7	22.4
Development	5.6	3.6	8.5	5.1	13.5	1.5	2.5	1.4	1.1	16.3
Mgmt/administration	15.6	15.0	17.8	9.2	14.3	15.4	15.2	12.3	15.9	18.8
R&D	7.6	6.7	12.7	3.1	8.4	9.1	7.7	2.0	3.1	12.5
Other	8.0	8.3	5.1	6.2	5.9	6.3	7.5	10.4	12.8	6.3
Teaching	22.7	23.8	16.4	44.9	18.4	21.1	17.8	17.1	43.6	17.0
Professional services	9.1	10.8	1.4	0.8	0.8	0.8	6.6	44.7	2.0	0.6
Report, statistical, and computing activity	3.6	3.7	3.2	7.1	9.9	5.7	3.0	2.5	4.6	3.4
Consulting	4.4	3.8	3.3	3.1	2.0	7.4	2.9	4.5	4.7	7.7
Other/no response	8.5	8.5	10.0	5.4	3.5	7.1	8.8	6.0	10.1	8.6

KEY: N = No cases reported (see NOTE below)

NOTE: All numbers in the table are derived from a sample.

SOURCE: National Science Foundation/SRS, 1991 Survey of Doctorate Recipients

Table 22. Employed doctoral scientists and engineers, by field of employment and broad field of doctorate: 1991

Field of employment	Total	All sciences	Physical	Math sciences	Comp/ info spec	Environ sciences	Life sciences	Psycho-logy	Social sciences	All engineering
Total (number)	437,206	367,440	80,872	20,049	5,376	13,263	113,743	65,672	68,465	69,766
	[Percent distribution]									
Sciences	74.6	85.1	79.6	86.0	91.3	89.1	91.4	89.5	75.1	19.7
Physical sciences	13.5	15.4	63.1	0.7	0.1	3.4	4.3	0.1	N	3.4
Mathematical sciences	3.5	3.9	0.6	64.4	3.0	0.1	0.2	0.1	0.9	1.4
Computer/info spec	5.5	4.7	5.2	15.6	87.1	1.6	1.5	2.2	3.0	9.6
Environmental sciences	4.5	4.9	3.5	1.0	N	78.4	3.1	0.1	1.3	2.1
Life sciences	24.4	28.5	7.0	3.4	0.5	3.8	81.2	5.2	3.4	2.5
Psychology	12.4	14.7	N	N	0.4	N	0.4	79.6	1.8	0.1
Social sciences	10.9	12.8	0.2	0.9	0.3	1.7	0.7	2.1	64.7	0.6
Engineering	15.1	3.9	12.2	6.4	4.1	5.1	1.2	0.8	0.6	73.7
Non-S&E fields	10.3	11.0	8.1	7.6	4.7	5.9	7.4	9.7	24.3	6.6

KEY: N = No cases reported (see NOTE below)

NOTE: All numbers in the table are derived from a sample.

SOURCE: National Science Foundation/SRS, 1991 Survey of Doctorate Recipients

Table 23. Median annual salaries of doctoral scientists and engineers, by demographic characteristics, race/ethnicity, and sex: 1991

Characteristics	Total 1/			White			Asian/Pacific Islander		
	Total	Male	Female	Total	Male	Female	Total	Male	Female
Total	$60,700	$62,800	$50,400	$60,900	$63,500	$50,500	$60,200	$60,700	$50,200
Age:									
Under 30	48,900	51,600	42,200	48,700	51,600	41,700	50,700	50,900	M
30-34	48,800	50,400	44,300	48,200	50,100	43,000	51,600	52,300	47,500
35-39	53,200	55,400	47,400	52,900	55,400	47,500	55,800	56,600	47,400
40-44	59,100	60,800	51,200	59,000	60,800	51,300	60,600	62,100	53,300
45-49	65,000	67,000	53,600	65,100	67,100	53,900	67,600	70,000	50,200
50-54	68,600	70,100	54,500	69,100	70,300	54,500	65,700	67,200	53,900
55-59	69,800	72,000	54,000	70,200	72,400	54,800	66,600	68,600	50,500
60-64	70,000	70,700	54,800	70,400	71,300	54,300	67,000	67,300	M
65-75	70,200	71,900	59,800	71,300	72,500	59,400	64,300	65,000	M
No response	55,500	56,200	M	55,200	56,400	M	M	M	M
Citizenship:									
U.S. total	61,100	63,800	50,500	61,000	63,700	50,500	65,100	66,000	53,100
U.S. native-born	60,700	63,100	50,400	60,800	63,300	50,400	60,300	60,800	52,600
U.S. naturalized	65,600	67,500	53,000	66,200	69,500	52,900	65,600	67,200	53,400
Non-U.S. total	53,400	54,500	48,100	56,200	58,000	50,500	52,500	53,300	45,500
Non-U.S. perm. resident	55,200	55,800	48,700	57,900	60,200	50,500	54,200	55,100	45,600
Non-U.S. temp. resident	46,300	46,800	41,900	46,200	46,300	M	48,200	49,000	45,700
Geographic region:									
New England	60,800	64,300	50,000	60,900	64,800	50,000	60,000	61,900	47,300
Middle Atlantic	64,300	66,000	55,000	64,600	67,100	54,500	63,000	64,500	57,100
East North Central	60,200	61,700	50,000	60,400	62,300	49,100	59,500	60,200	54,100
West North Central	54,700	56,100	46,000	54,900	56,300	45,600	53,000	53,800	50,000
South Atlantic	60,800	63,300	48,400	61,400	64,200	48,600	57,100	58,900	44,800
East South Central	55,400	56,500	48,000	56,200	58,600	47,900	46,500	46,700	M
West South Central	58,100	60,300	48,600	57,900	60,300	48,700	61,600	65,000	44,500
Mountain	58,100	60,300	48,700	58,300	60,300	49,000	54,300	55,500	47,200
Pacific	65,500	68,100	54,100	66,100	69,700	54,900	61,700	64,400	52,600
Other U.S.	38,300	40,100	33,200	39,100	40,200	31,100	M	M	M
Place of birth:									
U.S.	60,800	63,300	50,400	60,900	63,400	50,400	60,200	60,600	52,200
Canada	64,300	66,600	55,600	64,300	67,000	55,600	M	M	M
Latin & South America	55,700	58,700	48,500	56,900	60,500	48,100	M	M	M
North, Central, West Europe	63,400	65,400	55,500	63,700	65,700	55,400	M	M	M
Eastern Europe	67,500	69,800	50,300	67,700	69,900	50,000	M	M	M
Eastern Asia	60,200	60,800	50,500	49,100	55,500	M	60,300	60,800	50,800
Western Asia	60,700	61,300	48,800	61,600	62,200	52,000	60,300	60,800	47,700
Australasia 2/	60,700	65,300	46,000	61,400	62,500	M	60,200	65,700	44,900
Africa	55,900	56,400	49,700	61,300	63,000	52,600	M	M	M
No response	58,000	59,900	50,500	56,900	60,100	50,300	58,400	59,900	M

See explanatory information and SOURCE at end of table.

BEST COPY AVAILABLE

Table 23. Median annual salaries of doctoral scientists and engineers, by demographic characteristics, race/ethnicity, and sex: 1991

Characteristics	Black			Native American			Hispanic 3/		
	Total	Male	Female	Total	Male	Female	Total	Male	Female
Total	$53,300	$55,400	$50,200	$56,400	$58,400	$47,200	$55,100	$58,500	$46,100
Age:									
Under 30	M	M	M	M	M	M	M	M	M
30-34	46,400	46,200	46,600	M	M	M	45,700	45,400	48,000
35-39	46,100	45,800	46,400	50,300	51,400	M	48,300	51,100	42,900
40-44	50,800	52,700	50,200	58,100	58,200	M	50,400	51,500	46,600
45-49	55,900	58,200	54,600	54,100	M	M	62,700	65,800	50,400
50-54	56,500	56,500	56,600	M	M	M	70,400	70,700	M
55-59	65,300	68,900	M	M	M	M	71,600	72,500	M
60-64	65,000	61,900	M	M	M	M	65,400	M	M
65-75	61,600	M	M	M	M	M	M	M	M
No response	M	M	M	M	M	M	M	M	M
Citizenship:									
U.S. total	55,300	59,300	50,300	56,400	58,400	47,200	55,900	60,700	46,000
U.S. native-born	55,400	59,700	50,400	56,100	58,400	47,200	54,800	58,700	45,700
U.S. naturalized	54,400	54,800	M	M	M	M	61,100	63,000	47,700
Non-U.S. total	45,800	45,600	M	M	M	M	51,200	51,700	46,400
Non-U.S. perm. resident	46,600	46,300	M	M	M	M	54,300	55,200	46,500
Non-U.S. temp. resident	M	M	M	M	M	M	M	M	M
Geographic region:									
New England	53,100	53,000	M	M	M	M	54,400	58,700	M
Middle Atlantic	59,900	60,700	55,200	M	M	M	65,000	66,300	60,300
East North Central	52,500	52,600	52,300	M	M	M	53,600	56,100	46,000
West North Central	54,600	59,000	M	M	M	M	53,300	55,200	M
South Atlantic	54,700	60,100	48,600	M	M	M	58,500	61,700	51,100
East South Central	48,500	48,500	M	M	M	M	59,500	M	M
West South Central	49,300	48,700	50,300	51,100	M	M	55,900	62,100	42,400
Mountain	61,000	M	M	48,100	M	M	51,200	55,800	43,900
Pacific	52,600	55,000	50,800	53,700	53,600	M	58,200	60,500	45,200
Other U.S.	M	M	M	M	M	M	36,500	39,600	28,900
Place of birth:									
U.S.	55,000	59,200	50,200	55,100	55,800	45,700	54,600	58,300	45,700
Canada	M	M	M	M	M	M	M	M	M
Latin & South America	51,100	M	M	M	M	M	56,500	60,400	47,000
North, Central, West Europe	M	M	M	M	M	M	54,500	M	M
Eastern Europe	M	M	M	M	M	M	M	M	M
Eastern Asia	M	M	M	M	M	M	M	M	M
Western Asia	M	M	M	M	M	M	M	M	M
Australasia 2/	M	M	M	M	M	M	M	M	M
Africa	47,600	47,600	M	M	M	M	M	M	M
No response	58,200	M	M	M	M	M	M	M	M

See explanatory information and SOURCE at end of table.

Table 23. Median annual salaries of doctoral scientists and engineers, by demographic characteristics, race/ethnicity, and sex: 1991

1/ Totals include individuals whose race was specified as "other" and individuals from whom no response was received.
2/ Australasia comprises Australia, New Zealand, Indonesia, and the Philippines.
3/ Individuals who are included in the ethnic category "Hispanic" also may have been included in one of the race categories.

KEY: M = Median salaries were not computed for groups with fewer than 20 individuals reporting salary.

NOTES: All numbers in the table are estimates derived from a sample.

Median salaries were computed only for full-time employed civilians.

SOURCE: National Science Foundation/SRS, 1991 Survey of Doctorate Recipients

Table 24. Median annual salaries of employed doctoral scientists and engineers, by demographic characteristics and citizenship status: 1991

Characteristics	Total 1/	U.S. citizens			Non-U.S. citizens		
		Total	Native	Naturalized	Total	Perm res	Temp res
Total	$60,700	$61,100	$60,700	$65,600	$53,400	$55,200	$46,300
Sex:							
Men	62,800	63,800	63,100	67,500	54,500	55,800	46,800
Women	50,400	50,500	50,400	53,000	48,100	48,700	41,900
Race:							
White	60,900	61,000	60,800	66,200	56,200	57,900	46,200
Asian/Pacific Islander	60,200	65,100	60,300	65,600	52,500	54,200	48,200
Black	53,300	55,300	55,400	54,400	45,800	46,600	M
Native American	56,400	56,400	56,100	M	M	M	M
Other	61,000	61,200	61,100	M	M	M	M
No response	60,600	60,900	60,300	M	M	M	M
Ethnicity:							
Hispanic	55,100	55,900	54,800	61,100	51,200	54,300	M
Non-Hispanic	60,700	61,200	60,800	65,700	53,700	55,300	46,600
No response	60,900	62,000	61,000	70,000	M	M	M
Age:							
Under 30	48,900	48,900	48,600	M	48,800	50,400	48,600
30-34	48,800	48,100	47,700	53,900	51,600	52,900	49,200
35-39	53,200	53,300	52,500	59,900	52,800	55,300	42,300
40-44	59,100	59,800	58,700	63,900	52,800	53,700	52,100
45-49	65,000	65,100	64,600	70,000	58,200	58,500	M
50-54	68,600	68,700	68,700	69,500	61,900	61,200	M
55-59	69,800	69,800	69,900	69,600	67,900	67,400	M
60-64	70,000	70,100	70,100	70,400	53,700	M	M
65-75	70,200	70,700	70,000	73,200	M	M	M
No response	55,500	55,500	55,000	M	M	M	M
Geographic division:							
New England	60,800	61,500	60,900	69,900	51,300	52,800	M
Middle Atlantic	64,300	65,100	64,400	70,100	56,800	58,800	52,700
East North Central	60,200	60,600	60,300	63,800	52,600	55,100	39,800
West North Central	54,700	55,100	54,900	56,600	48,500	52,000	M
South Atlantic	60,800	61,300	61,400	61,100	50,600	51,000	46,600
East South Central	55,400	56,000	55,900	60,200	41,100	40,800	M
West South Central	58,100	58,500	57,000	65,500	52,200	52,800	M
Mountain	58,100	58,700	58,500	61,300	48,400	53,100	M
Pacific	65,500	66,000	65,600	70,400	57,500	59,900	50,900
Other U.S.	38,300	37,700	36,300	M	M	M	M
Place of birth:							
U.S.	60,800	60,800	60,800	M	M	M	M
Canada	64,300	66,900	56,700	67,200	62,000	62,600	M
Latin & South America	55,700	60,500	65,500	60,300	50,700	50,900	M
North, Central, West Europe	63,400	66,900	51,200	69,400	56,700	58,100	46,000
Eastern Europe	67,500	69,800	M	70,200	56,700	60,000	M

See explanatory information and SOURCE at end of table.

Table 24. Median annual salaries of employed doctoral scientists and engineers, by demographic characteristics and citizenship status: 1991

Characteristics	Total 1/	U.S. citizen			Non-U.S. citizen		
		Total	Native	Naturalized	Total	Perm res	Temp res
Place of birth--continued:							
Eastern Asia	$60,200	$65,100	$60,500	$65,300	$50,900	$52,700	$47,000
Western Asia	60,700	66,100	51,400	66,600	55,400	56,300	45,200
Australasia 2/	60,700	64,700	M	65,800	49,600	50,300	M
Africa	55,900	60,900	M	60,700	46,900	48,600	M
No response	58,000	58,200	58,000	61,200	53,000	54,200	M
Field of degree:							
Sciences	59,000	59,900	59,400	61,400	50,400	51,800	43,500
Physical sciences	65,100	65,700	65,600	66,500	51,200	53,800	43,400
Chemistry	63,200	64,200	64,200	64,200	50,900	53,200	M
Physics/astronomy	67,100	68,400	68,200	69,800	51,700	55,200	37,400
Mathematical sciences	60,800	61,900	61,900	63,000	48,700	50,600	M
Mathematics	60,100	61,300	61,100	63,100	46,700	47,800	M
Statistics/probability	62,400	67,000	68,700	63,000	51,800	55,000	M
Computer/info spec	68,100	70,300	69,800	75,300	61,800	66,200	M
Environmental sciences	60,200	60,500	60,500	60,400	48,700	48,700	M
Earth sciences	60,300	60,600	60,600	60,700	48,800	52,700	M
Oceanography	60,400	60,500	60,300	M	M	M	M
Atmospheric sciences	58,300	59,700	60,100	M	M	M	M
Life sciences	55,500	55,700	55,500	60,300	48,500	50,100	35,800
Biological sciences	55,500	55,700	55,600	58,900	46,800	48,200	34,300
Agricultural sciences	51,500	51,900	52,000	51,000	45,300	49,600	M
Medical sciences	59,500	60,000	58,400	69,700	55,200	55,800	M
Psychology	55,500	55,500	55,500	53,300	50,900	55,000	M
Social sciences	56,100	56,600	56,600	56,800	48,300	48,300	42,500
Economics	64,300	65,300	66,000	59,000	58,200	55,000	M
Sociology/anthropology	50,500	50,800	50,500	55,400	44,600	45,100	M
Other social sciences	55,200	55,600	55,600	55,000	46,400	47,100	M
Engineering	70,200	72,300	72,700	70,900	57,600	60,100	51,100
Aeronautical/astronautical	73,200	73,900	73,500	78,900	61,000	M	M
Chemical	71,700	74,200	73,000	77,800	60,300	60,300	M
Civil	65,200	66,600	67,100	65,500	52,400	56,100	M
Electrical/electronic	74,200	76,900	78,300	73,200	60,800	64,500	55,100
Materials science	65,000	68,300	68,100	68,700	54,500	56,300	M
Mechanical	68,900	73,100	75,200	70,100	54,400	56,600	49,200
Nuclear	70,400	71,900	70,100	80,700	M	M	M
Systems design	71,300	72,600	72,100	M	M	M	M
Other	68,100	70,000	70,300	69,500	56,700	57,600	M

1/ Totals include individuals for whom citizenship was unspecified or from whom no response was received.

2/ Australasia comprises Australia, New Zealand, Indonesia, and the Philippines.

KEY: M = Median salaries were not computed for groups with fewer than 20 individuals reporting salary.

NOTES: All numbers in the table are estimates derived from a sample.
Median salaries were computed only for full-time employed civilians.

SOURCE: National Science Foundation/SRS, 1991 Survey of Doctorate Recipients

Table 25. Median annual salaries of employed doctoral scientists and engineers, by demographic characteristics and employment sector: 1991

Characteristics	Total 1/ employed	Education		Business/Industry			Government		Nonprofit 2/
		Total	Univ/ 4-yr college	Total	Not self-employed	Self-employed	Federal civilian	State/local	
Total	$60,700	$56,300	$56,800	$70,200	$70,000	$72,900	$60,300	$47,500	$53,300
Sex:									
Men	62,800	59,200	59,700	70,700	70,500	75,800	60,800	48,100	58,700
Women	50,400	48,000	48,000	60,300	58,600	60,800	54,700	45,800	46,000
Race:									
White	60,900	56,800	57,400	70,700	70,500	75,000	60,600	47,200	53,600
Asian/Pacific Islander	60,200	52,700	53,200	65,100	65,000	65,600	55,400	45,100	52,700
Black	53,300	50,200	50,300	60,800	60,300	61,900	55,500	52,000	50,600
Native American	56,400	52,000	52,000	70,100	60,800	M	M	M	M
Other	61,000	59,800	61,000	M	M	M	M	M	M
No response	60,600	61,100	57,900	65,400	65,000	M	M	M	M
Ethnicity:									
Hispanic	55,100	50,600	49,900	65,100	60,900	90,600	55,800	45,900	55,600
Non-Hispanic	60,700	56,400	56,900	70,200	70,000	72,500	60,300	47,500	53,300
No response	60,900	60,200	60,400	70,000	65,600	M	M	M	M
Age:									
Under 30	48,900	44,400	44,400	53,400	53,400	M	M	M	M
30-34	48,800	44,400	44,500	55,600	55,500	60,200	43,700	40,100	44,000
35-39	53,200	47,900	48,000	62,900	62,500	73,900	48,300	42,700	50,400
40-44	59,100	52,400	52,800	70,400	70,400	70,500	55,600	45,500	55,700
45-49	65,000	59,600	60,300	78,200	78,100	80,000	63,200	48,700	56,900
50-54	68,600	63,600	64,700	78,700	78,900	75,800	68,000	52,100	65,600
55-59	69,800	67,200	67,600	80,000	80,700	60,700	68,100	55,400	53,300
60-64	70,000	68,300	69,100	75,900	78,200	75,100	68,700	54,100	60,100
65-75	70,200	71,000	72,800	70,900	70,600	72,100	73,500	M	69,100
No response	55,500	53,900	53,100	M	M	M	M	M	M
Citizenship:									
U.S. total	61,100	57,000	57,600	70,700	70,500	73,400	60,400	48,200	53,500
U.S. native-born	60,700	56,400	56,900	70,700	70,600	72,900	60,500	48,000	53,200
U.S. naturalized	65,600	62,600	63,200	70,400	70,300	77,000	58,700	49,800	56,400
Non-U.S. total	53,400	48,700	48,900	58,300	58,100	70,000	50,800	43,000	50,400
Non-U.S. perm. resident	55,200	50,900	51,400	60,000	59,500	70,400	50,700	45,000	55,000
Non-U.S. temp. resident	46,300	39,900	39,800	52,000	51,800	M	M	M	M
Geographic division:									
New England	60,800	57,800	58,200	70,700	70,500	73,500	59,600	38,800	52,100
Middle Atlantic	64,300	60,100	60,100	70,900	70,700	75,100	57,100	52,200	52,700
East North Central	60,200	56,400	56,700	65,900	65,800	70,200	55,400	45,800	50,300
West North Central	54,700	52,200	52,400	64,900	65,200	60,500	52,100	40,500	45,400
South Atlantic	60,800	55,300	55,700	70,000	68,400	80,000	64,000	48,200	60,400
East South Central	55,400	52,500	52,700	63,200	62,800	80,100	53,700	M	46,800
West South Central	58,100	51,800	52,500	68,900	69,900	65,600	57,700	42,000	50,300
Mountain	58,100	55,600	55,800	65,800	67,300	60,900	55,100	45,000	53,000
Pacific	65,500	61,800	62,400	72,600	72,100	80,200	58,800	49,700	55,800
Other U.S.	38,300	36,100	36,200	M	M	M	M	M	M

See explanatory information and SOURCE at end of table.

Table 25. Median annual salaries of employed doctoral scientists and engineers, by demographic characteristics and employment sector: 1991

Characteristics	Total 1/ employed	Education		Business/Industry			Government		Nonprofit 2/
		Total	Univ/ 4-yr college	Total	Not self-employed	Self-employed	Federal civilian	State/local	
Place of birth:									
U.S.	60,800	56,500	57,000	70,800	70,700	73,800	60,600	48,100	53,800
Canada	64,300	61,900	61,900	70,400	68,200	M	M	M	M
Latin & South America	55,700	52,500	52,500	67,500	63,200	M	M	M	47,900
North, Central, West Europe	63,400	62,200	61,800	68,100	67,700	70,600	52,100	M	50,500
Eastern Europe	67,500	61,800	62,000	71,600	70,100	M	M	M	M
Eastern Asia	60,200	55,000	55,200	63,100	63,000	65,300	52,500	45,100	52,600
Western Asia	60,700	53,500	53,900	68,500	68,000	80,000	59,400	45,600	56,500
Australasia 3/	60,700	50,200	50,400	72,200	72,100	M	M	M	M
Africa	55,900	48,200	49,000	60,300	58,900	M	M	M	M
No response	58,000	55,200	55,300	62,700	63,400	61,600	58,100	M	50,800

1/ Totals include individuals who work in employment sectors other than education, business/industry, government, and nonprofit organizations; they also include individuals for whom no response was received.

2/ Nonprofit [organizations] include hospitals and clinics.

3/ Australasia comprises Australia, New Zealand, Indonesia, and the Philippines.

KEY: M = Median salaries were not computed for groups with fewer than 20 individuals reporting salary.

NOTES: All numbers in the table are estimates derived from a sample.

Median salaries were computed only for full-time employed civilians.

SOURCE: National Science Foundation, 1991 Survey of Doctorate Recipients

Table 26. Median annual salaries of employed doctoral scientists and engineers, by demographic characteristics and primary work activity: 1991

Characteristics	Total empl'd	Research & development				Mgmt/administration of--			Teaching	Prof services	Consult-ing	Other/ no response
		Total	Basic	Applied	Dvlpt/ design	Total	R&D	Other				
Total	$60,700	$60,700	$56,800	$60,800	$65,800	$74,800	$80,400	$67,300	$54,200	$57,200	$70,300	$60,200
Sex:												
Men	62,800	62,300	60,300	62,000	66,900	78,100	80,800	70,900	56,100	60,500	72,100	60,800
Women	50,400	51,000	47,600	53,300	60,100	57,400	66,800	53,300	47,100	50,500	60,000	50,700
Race:												
White	60,900	61,100	58,000	61,100	68,300	74,900	80,500	67,500	54,800	57,700	70,900	60,300
Asian/Pacific Islander	60,200	58,900	50,800	60,000	62,700	78,400	79,300	73,300	55,300	60,600	62,000	60,100
Black	53,300	55,400	54,200	53,800	60,200	60,200	73,800	58,400	46,400	50,900	60,900	55,200
Native American	56,400	59,800	M	60,000	M	M	M	M	55,000	M	M	M
Other	61,000	M	M	M	M	M	M	M	M	M	M	M
No response	60,600	60,200	M	M	M	M	M	M	M	M	M	M
Ethnicity:												
Hispanic	55,100	55,400	51,500	61,500	62,500	65,100	69,500	54,500	48,600	55,700	67,400	55,200
Non-Hispanic	60,700	60,800	56,900	60,800	65,800	75,000	80,500	67,400	54,600	57,000	70,300	60,300
No response	60,900	61,700	63,300	60,400	M	70,900	M	M	51,400	M	M	60,700
Age:												
Under 30	48,900	51,100	42,600	51,600	55,800	M	M	M	41,500	M	M	M
30-34	48,800	51,100	45,700	53,100	56,600	53,600	60,800	41,000	42,500	40,900	58,000	49,700
35-39	53,200	55,300	50,300	56,900	61,600	60,900	70,200	49,500	44,700	53,700	63,000	50,700
40-44	59,100	60,400	56,800	60,500	65,800	71,900	79,000	60,800	49,100	58,100	65,500	60,600
45-49	65,000	67,400	63,800	67,200	72,300	75,700	85,100	69,500	55,500	60,600	78,700	60,700
50-54	68,600	70,900	74,800	70,300	72,300	80,000	85,000	73,900	57,900	64,400	75,600	66,600
55-59	69,800	75,300	76,600	72,800	76,600	80,100	88,300	72,800	63,000	58,700	83,600	65,400
60-64	70,000	75,300	80,800	71,400	72,800	80,300	80,700	77,600	63,900	64,100	73,900	60,600
65-75	70,200	76,400	90,600	68,100	M	80,900	80,300	83,000	66,000	70,400	65,300	63,800
No response	55,500	53,600	M	M	M	M	M	M	M	M	M	M
Citizenship:												
U.S. total	61,100	61,600	58,400	61,600	67,800	74,800	80,400	67,200	55,000	57,700	70,600	60,400
U.S. native-born	60,700	60,900	57,500	61,100	67,500	74,300	80,500	66,500	53,900	55,900	70,900	60,200
U.S. naturalized	65,600	65,500	63,800	64,900	68,700	78,100	80,100	72,600	59,600	73,400	65,000	62,700
Non-U.S. total	53,400	53,900	48,900	54,400	59,800	75,000	78,000	68,800	48,900	50,300	60,200	52,100
Non-U.S. perm. resident	55,200	55,600	51,300	55,500	60,200	75,300	78,600	68,600	50,700	50,900	65,100	52,300
Non-U.S. temp. resident	46,300	46,100	32,300	50,100	51,600	M	M	M	42,200	M	M	50,600
Geographic division:												
New England	60,800	59,500	53,200	61,500	63,800	75,300	81,900	69,600	57,200	60,000	79,800	60,600
Middle Atlantic	64,300	64,400	61,100	65,000	65,900	80,700	87,500	73,700	57,500	60,600	69,300	64,600
East North Central	60,200	60,200	58,000	60,400	60,800	75,400	80,400	66,500	55,000	53,300	68,000	60,100
West North Central	54,700	54,700	53,000	55,000	58,700	67,700	75,800	63,400	51,400	50,500	62,800	54,900
South Atlantic	60,800	60,200	56,100	60,300	67,100	72,900	75,700	69,600	52,000	55,900	75,800	60,800
East South Central	55,400	55,300	49,200	57,000	62,800	64,600	75,400	60,700	51,000	55,800	M	50,900
West South Central	58,100	60,200	51,800	60,500	65,500	70,700	80,600	65,500	49,800	53,100	65,200	60,800
Mountain	58,100	60,300	53,800	60,900	63,700	69,800	75,200	60,700	51,600	55,600	65,400	50,400
Pacific	65,500	64,600	60,500	62,400	72,400	79,800	85,900	67,400	61,600	60,100	70,700	60,400
Other U.S.	38,300	34,100	M	M	M	44,600	M	44,600	34,100	M	M	M

See explanatory information and SOURCE at end of table.

Table 26. Median annual salaries of employed doctoral scientists and engineers, by demographic characteristics and primary work activity: 1991

Characteristics	Total empl'd	Research & development				Mgmt/administration of--			Teaching	Prof services	Consult-ing	Other/no response
		Total	Basic	Applied	Dvlpt/ design	Total	R&D	Other				
Place of birth:												
U.S.	60,800	61,100	58,100	61,000	67,900	74,600	80,600	66,700	53,900	56,500	72,100	60,200
Canada	64,300	62,700	52,100	65,500	M	80,900	M	M	57,500	M	M	M
Latin & South America	55,700	55,500	51,300	60,200	M	73,600	M	M	51,200	95,200	M	57,400
North, Central, West Europe	63,400	63,200	65,600	59,400	68,400	74,000	93,900	68,600	59,400	60,500	57,400	63,200
Eastern Europe	67,500	64,800	60,300	65,800	M	90,000	M	M	59,100	M	M	55,900
Eastern Asia	60,200	58,700	50,600	59,000	62,300	75,900	77,000	69,900	59,400	55,300	55,000	57,500
Western Asia	60,700	60,300	56,500	60,100	65,400	77,300	77,000	77,800	52,500	57,700	70,100	65,500
Australasia 1/	60,700	60,700	M	M	M	M	M	M	51,100	M	M	M
Africa	55,900	60,000	54,800	54,700	M	56,000	M	M	46,800	M	M	56,600
No response	58,000	58,100	50,700	61,100	51,400	70,100	73,800	61,100	53,400	50,900	68,000	53,600

1/ Australasia comprises Australia, New Zealand, Indonesia, and the Philippines.

KEY: M = Medians were not computed for groups with fewer than 20 individuals reporting salary.

NOTES: All numbers in the table are estimates derived from a sample.

Median salaries were computed only for full-time employed civilians.

SOURCE: National Science Foundation/SRS, 1991 Survey of Doctorate Recipients

Table 27. Median annual salaries of employed doctoral scientists and engineers, by demographic characteristics and broad field of doctorate: 1991

Characteristics	Total	All sciences	Physical sciences	Math sciences	Computer/ info spec	Environ sciences	Life sciences	Psycho-logy	Social sciences	All engineering
Total	$60,700	$59,000	$65,100	$60,800	$68,100	$60,200	$55,500	$55,500	$56,100	$70,200
Sex:										
Men	62,800	60,900	65,600	61,300	69,000	60,600	58,300	58,900	58,900	70,400
Women	50,400	50,300	55,400	52,800	63,400	51,400	48,500	50,300	50,000	59,600
Race:										
White	60,900	59,700	65,600	61,400	70,200	60,500	55,800	55,600	56,500	72,100
Asian/Pacific Islander	60,200	55,900	59,500	53,600	64,300	53,800	52,200	50,400	54,400	65,200
Black	53,300	52,100	57,900	59,200	M	M	50,100	52,200	50,900	60,500
Native American	56,400	55,200	M	M	M	M	55,300	M	48,800	M
Other	61,000	52,300	M	M	M	M	M	M	M	M
No response	60,600	60,600	M	M	M	M	M	M	M	M
Ethnicity:										
Hispanic	55,100	52,500	60,500	52,600	M	65,500	51,900	52,100	47,900	60,800
Non-Hispanic	60,700	59,100	65,200	60,700	67,900	60,200	55,500	55,500	56,300	70,300
No response	60,900	61,400	60,500	M	M	M	61,500	53,300	60,000	60,600
Age:										
Under 30	48,900	46,400	47,200	M	M	M	36,200	M	M	55,100
30-34	48,800	45,900	50,700	46,200	64,000	45,600	42,100	42,100	46,300	56,800
35-39	53,200	50,900	57,700	50,100	68,900	48,900	48,600	50,500	47,600	62,000
40-44	59,100	56,200	65,100	61,500	67,100	57,500	53,500	55,500	52,500	70,200
45-49	65,000	61,800	71,000	64,600	92,400	61,900	59,500	58,800	60,400	77,100
50-54	68,600	66,000	70,800	70,200	80,300	70,500	65,100	60,500	60,500	78,800
55-59	69,800	66,700	75,000	67,800	M	70,200	64,100	60,600	63,100	80,500
60-64	70,000	68,900	73,200	79,200	M	70,800	67,300	62,700	64,600	74,300
65-75	70,200	68,000	67,900	61,800	M	M	70,000	61,900	70,500	80,700
No response	55,500	52,800	M	M	M	M	M	M	M	M
Citizenship:										
U.S. total	61,100	59,900	65,700	61,900	70,300	60,500	55,700	55,500	56,600	72,300
U.S. native-born	60,700	59,400	65,600	61,900	69,800	60,500	55,500	55,500	56,600	72,700
U.S. naturalized	65,600	61,400	66,500	63,000	75,300	60,400	60,300	53,300	56,800	70,900
Non-U.S. total	53,400	50,400	51,200	48,700	61,800	48,700	48,500	50,900	48,300	57,600
Non-U.S. perm. resident	55,200	51,800	53,800	50,600	66,200	48,700	50,100	55,000	48,300	60,100
Non-U.S. temp. resident	46,300	43,500	43,400	M	M	M	35,800	M	42,500	51,100
Geographic division:										
New England	60,800	59,000	66,000	63,800	73,500	56,600	55,600	56,200	55,400	70,900
Middle Atlantic	64,300	62,400	67,500	63,500	70,900	60,300	60,500	59,900	60,100	70,800
East North Central	60,200	58,000	62,000	60,000	68,700	45,300	58,000	55,200	55,700	67,000
West North Central	54,700	52,600	60,500	53,700	M	55,500	52,100	48,700	50,300	68,000
South Atlantic	60,800	60,000	64,800	61,600	65,500	60,300	56,200	54,900	61,000	68,100
East South Central	55,400	53,300	58,900	52,700	M	52,000	50,000	55,500	55,700	63,400
West South Central	58,100	53,700	60,700	51,000	64,700	65,300	50,700	51,400	50,000	69,200
Mountain	58,100	55,000	64,100	61,300	M	58,100	50,200	51,700	51,100	70,200
Pacific	65,500	62,200	70,500	69,200	75,200	66,500	57,800	60,300	58,800	74,400
Other U.S.	38,300	36,700	27,100	M	M	M	40,300	M	39,300	M

See explanatory information and SOURCE at end of table.

Table 27. Median annual salaries of employed doctoral scientists and engineers, by demographic characteristics and broad field of doctorate: 1991

Characteristics	Total	All sciences	Physical sciences	Math sciences	Computer/ info spec	Environ sciences	Life sciences	Psycho-logy	Social sciences	All engineering
Place of birth:										
U.S.	60,800	59,600	65,700	62,600	70,000	60,600	55,600	55,600	56,300	73,000
Canada	64,300	63,300	67,000	M	M	M	56,400	70,400	67,500	70,700
Latin & South America	55,700	52,300	55,100	M	M	M	51,100	54,100	51,900	64,500
North, Central, West Europe	63,400	63,000	71,000	58,700	M	58,900	63,300	58,900	55,800	66,500
Eastern Europe	67,500	63,800	68,400	48,100	M	M	70,300	M	55,200	73,400
Eastern Asia	60,200	56,800	59,900	55,000	63,800	54,900	52,000	M	59,500	63,900
Western Asia	60,700	54,500	55,500	55,300	67,100	55,500	53,000	47,400	50,200	67,500
Australasia 1/	60,700	55,300	M	M	M	M	55,500	M	55,600	M
Africa	55,900	50,600	M	M	M	M	49,600	M	45,800	61,500
No response	58,000	53,900	60,300	M	M	M	51,600	50,800	58,600	65,500

1/ Australasia comprises Australia, New Zealand, Indonesia, and the Philippines.

KEY: M = Median salaries were not computed for groups with fewer than 20 individuals reporting salary.

NOTES: All numbers in the table are estimates derived from a sample.

Median salaries were computed only for full-time employed civilians.

SOURCE: National Science Foundation/SRS, 1991 Survey of Doctorate Recipients

Table 28. Median annual salaries of doctoral scientists and engineers, by employment-related characteristics, race/ethnicity, and sex: 1991

Characteristics	Total 1/			White			Asian/Pacific Islander		
	Total	Male	Female	Total	Male	Female	Total	Male	Female
Total	$60,700	$62,800	$50,400	$60,900	$63,500	$50,500	$60,200	$60,700	$50,200
Field of degree:									
Sciences	59,000	60,900	50,300	59,700	61,400	50,300	55,900	58,100	49,600
Physical sciences	65,100	65,600	55,400	65,600	66,200	55,700	59,500	60,300	52,700
Chemistry	63,200	64,300	55,000	64,200	65,100	55,200	58,600	58,900	54,100
Physics/Astronomy	67,100	67,500	58,000	68,100	68,700	60,700	60,800	65,000	48,800
Mathematical sciences	60,800	61,300	52,800	61,400	61,900	53,100	53,800	53,600	52,800
Mathematics	60,100	60,900	50,700	60,600	61,300	51,000	53,000	53,300	46,700
Statistics/probability	62,400	62,600	61,100	65,600	65,900	61,100	55,600	55,400	M
Computer/info spec	68,100	69,000	63,400	70,200	70,800	63,400	64,300	64,300	M
Environmental sciences	60,200	60,600	51,400	60,500	60,900	51,500	53,800	54,200	M
Earth sciences	60,300	60,700	51,600	60,600	61,000	54,000	54,100	54,500	M
Oceanography	60,400	60,900	M	60,500	61,100	M	M	M	M
Atmospheric sciences	58,300	59,400	M	58,300	59,500	M	M	M	M
Life sciences	55,500	58,300	48,500	55,800	58,900	48,700	52,200	54,400	47,700
Biological sciences	55,500	58,200	48,300	55,800	59,000	48,500	50,700	51,900	47,500
Agricultural sciences	51,500	52,900	41,700	51,900	53,300	41,700	47,100	49,500	36,500
Medical sciences	59,500	65,800	50,600	59,800	66,400	50,600	60,500	65,300	55,000
Psychology	55,500	58,900	50,300	55,600	59,500	50,300	50,400	50,800	47,600
Social sciences	56,100	58,900	50,000	56,500	59,700	50,000	54,400	55,900	47,100
Economics	64,300	65,100	57,400	65,800	66,400	57,300	55,300	55,000	55,700
Sociology/Anthropology	50,500	51,400	47,400	50,700	51,600	47,400	45,500	52,000	40,300
Other social sciences	55,200	56,900	48,600	55,300	57,100	48,600	60,000	60,400	45,300
Engineering	70,200	70,400	59,600	72,100	72,500	59,800	65,200	65,400	57,000
Aeronautical/Astronautical	73,200	73,400	M	74,600	74,600	M	68,100	68,700	M
Chemical	71,700	72,800	58,100	72,600	73,600	58,100	68,500	68,600	M
Civil	65,200	65,400	59,400	66,900	67,000	60,600	60,400	60,500	M
Electrical/Electronic	74,200	74,700	60,900	76,200	77,100	60,700	68,900	69,400	60,800
Materials science	65,000	65,500	56,600	65,900	67,800	M	60,700	61,700	M
Mechanical	68,900	70,000	M	73,000	73,200	M	60,300	60,300	M
Nuclear	70,400	70,400	M	70,200	70,200	M	71,600	71,800	M
Systems design	71,300	72,000	M	70,900	71,700	M	M	M	M
Other	68,100	68,400	61,200	70,700	70,900	58,600	61,000	60,900	M
Years of prof. experience:									
Less than 5	46,000	48,000	42,000	45,800	47,800	42,000	48,500	49,600	43,000
5-9	51,900	53,700	48,100	51,600	53,300	48,100	54,700	55,400	47,600
10-14	60,400	61,300	54,700	60,100	60,900	54,500	65,100	65,700	56,100
15-19	65,600	67,000	59,200	65,300	66,400	59,500	70,100	70,500	55,900
20-24	71,000	72,500	57,300	71,700	72,700	56,800	70,700	72,200	60,700
25-29	74,800	75,200	65,300	74,800	75,200	65,000	75,400	76,000	M
30-34	77,200	78,100	65,100	77,200	78,000	65,300	80,600	80,700	M
35 or more	81,100	81,300	74,900	81,100	81,000	M	85,600	87,500	M
No response	60,700	62,700	49,300	60,400	61,900	50,100	M	M	M

See explanatory information and SOURCE at end of table.

Table 28. Median annual salaries of doctoral scientists and engineers, by employment-related characteristics, race/ethnicity, and sex: 1991

Characteristics	Total 1/			White			Asian/Pacific Islander		
	Total	Male	Female	Total	Male	Female	Total	Male	Female
Sector of employment:									
Business/Industry, total	$70,200	$70,700	$60,300	$70,700	$72,200	$60,400	$65,100	$65,500	$56,900
Not self-employed	70,000	70,500	58,600	70,500	71,700	58,800	65,000	65,500	56,400
Self-employed	72,900	75,800	60,800	75,000	80,000	60,900	65,600	65,600	60,800
Educational institution	56,300	59,200	48,000	56,800	60,000	48,100	52,700	55,100	46,600
Univ./4-yr college	56,800	59,700	48,000	57,400	60,300	48,100	53,200	55,300	46,900
Other	50,800	52,700	48,100	51,200	53,400	48,100	41,300	40,400	M
Federal Govt. (civilian)	60,300	60,800	54,700	60,600	61,400	55,500	55,400	57,600	49,200
State/local govt	47,500	48,100	45,800	47,200	48,100	45,500	45,100	45,300	42,000
Hospitals/clinics	50,600	52,900	44,800	50,500	53,000	44,900	52,100	52,800	42,500
Other nonprofits	59,600	62,900	48,900	60,200	64,400	48,700	55,000	56,300	M
Other/no response	75,400	76,900	65,100	75,800	80,300	M	80,100	M	M
Primary work activity:									
Research and development	60,700	62,300	51,000	61,100	63,000	51,300	58,900	60,200	50,400
Basic research	56,800	60,300	47,600	58,000	60,900	48,100	50,800	53,000	46,800
Applied research	60,800	62,000	53,300	61,100	62,600	53,400	60,000	60,300	53,900
Development	65,800	66,900	60,100	68,300	69,300	60,100	62,700	63,500	59,500
Management/administration	74,800	78,100	57,400	74,900	78,400	57,000	78,400	79,900	62,700
R&D	80,400	80,800	66,800	80,500	81,100	66,400	79,300	80,100	69,200
Other	67,300	70,900	53,300	67,500	71,400	52,700	73,300	75,800	48,100
Teaching	54,200	56,100	47,100	54,800	56,400	47,100	55,300	55,700	47,200
Professional services	57,200	60,500	50,500	57,700	60,500	50,500	60,600	65,200	50,300
Report, statistical, and computing activity	55,800	57,200	50,700	55,900	56,800	52,200	59,100	60,300	40,900
Consulting	70,300	72,100	60,000	70,900	75,100	60,000	62,000	62,700	M
Other/no response	61,200	64,100	50,700	62,000	64,700	50,500	60,200	60,400	50,700

See explanatory information and SOURCE at end of table.

Table 28. Median annual salaries of doctoral scientists and engineers, by employment-related characteristics, race/ethnicity, and sex: 1991

Characteristics	Black 2/			Native American			Hispanic 2/		
	Total	Male	Female	Total	Male	Female	Total	Male	Female
Total	$53,300	$55,400	$50,200	$56,400	$58,400	$47,200	$55,100	$58,500	$46,100
Field of degree:									
Sciences	52,100	53,300	50,100	55,200	56,600	47,200	52,500	57,700	45,500
Physical sciences	57,900	59,900	M	M	M	M	60,500	62,500	47,000
Chemistry	56,700	59,600	M	M	M	M	60,200	62,500	44,800
Physics/Astronomy	60,300	60,100	M	M	M	M	61,000	62,700	M
Mathematical sciences	59,200	59,400	M	M	M	M	52,600	52,900	M
Mathematics	58,700	60,000	M	M	M	M	52,800	60,100	M
Statistics/probability	M	M	M	M	M	M	M	M	M
Computer/info spec	M	M	M	M	M	M	M	M	M
Environmental sciences	M	M	M	M	M	M	65,500	M	M
Earth sciences	M	M	M	M	M	M	M	M	M
Oceanography	M	M	M	M	M	M	M	M	M
Atmospheric sciences	M	M	M	M	M	M	M	M	M
Biological sciences	50,900	54,500	42,300	67,300	M	M	53,900	60,700	41,300
Agricultural sciences	39,500	39,300	M	M	M	M	45,800	45,800	M
Medical sciences	50,900	54,000	49,000	M	M	M	62,800	85,200	48,800
Psychology	52,200	55,000	50,500	M	M	M	52,100	55,500	47,300
Social sciences	50,900	48,800	52,600	48,800	M	M	47,900	49,900	46,100
Economics	48,500	48,000	M	M	M	M	54,900	54,500	M
Sociology/Anthropology	50,300	48,800	50,700	M	M	M	46,000	46,800	40,500
Other social sciences	51,800	48,900	55,200	M	M	M	44,400	42,100	47,000
Engineering	60,500	60,500	M	M	M	M	60,800	60,900	M
Aeronautical/astronautical	M	M	M	M	M	M	M	M	M
Chemical	M	M	M	M	M	M	62,800	M	M
Civil	M	M	M	M	M	M	M	M	M
Electrical/electronic	62,900	62,600	M	M	M	M	59,000	60,900	M
Materials science	M	M	M	M	M	M	M	M	M
Mechanical	M	M	M	M	M	M	M	M	M
Nuclear	M	M	M	M	M	M	M	M	M
Systems design	M	M	M	M	M	M	M	M	M
Other	M	M	M	M	M	M	61,500	62,100	M
Years of prof. experience:									
Less than 5	42,600	42,700	42,400	48,000	48,300	M	42,600	42,800	40,700
5-9	49,100	49,700	48,600	58,200	58,400	M	50,200	51,000	46,800
10-14	57,700	58,600	55,900	60,600	M	M	57,600	56,900	60,000
15-19	56,800	60,800	51,900	M	M	M	67,900	69,500	M
20-24	64,200	63,800	64,400	M	M	M	82,500	85,300	M
25-29	75,200	75,500	M	M	M	M	76,500	76,500	M
30-34	M	M	M	M	M	M	M	M	M
35 or more	M	M	M	M	M	M	M	M	M
No response	M	M	M	M	M	M	M	M	M

See explanatory information and SOURCE at end of table.

Table 28. Median annual salaries of doctoral scientists and engineers, by employment-related characteristics, race/ethnicity, and sex: 1991

Characteristics	Black			Native American			Hispanic 2/		
	Total	Male	Female	Total	Male	Female	Total	Male	Female
Sector of employment:									
Business/industry, total	$60,800	$60,900	$58,100	$70,100	$70,100	M	$65,100	$68,000	$50,800
Not self-employed	60,300	60,200	65,100	60,800	60,500	M	60,900	64,100	50,000
Self-employed	61,900	65,400	M	M	M	M	90,600	95,900	M
Educational institution	50,200	51,200	48,600	52,000	55,300	M	50,600	53,300	42,400
Univ./4-yr college	50,300	51,700	48,400	52,000	55,300	M	49,900	52,700	41,900
Other	48,900	45,900	M	M	M	M	55,300	M	M
Federal Govt. (civilian)	55,500	58,100	54,200	M	M	M	55,800	56,100	M
State/local govt	52,000	52,000	M	M	M	M	45,900	M	M
Hospitals/clinics	50,200	M	M	M	M	M	53,800	65,100	M
Other nonprofits	54,100	60,000	M	M	M	M	60,200	M	M
Other/no response	M	M	M	M	M	M	M	M	M
Primary work activity:									
Research and development	55,400	57,000	49,500	59,800	60,200	M	55,400	60,100	46,100
Basic research	54,200	59,800	46,000	M	M	M	51,500	53,000	37,100
Applied research	53,800	55,400	49,700	60,000	60,100	M	61,500	63,300	48,600
Development	60,200	60,400	M	M	M	M	62,500	63,500	M
Management/administration	60,200	61,300	58,400	M	M	M	65,100	65,700	50,800
R&D	73,800	73,700	M	M	M	M	69,500	71,100	M
other	58,400	60,500	58,000	M	M	M	54,500	60,600	48,600
Teaching	46,400	47,200	44,700	55,000	55,500	M	48,600	52,300	43,400
Professional services	50,900	55,600	50,500	M	M	M	55,700	67,100	48,800
Reporting, statistical, and computing activity	47,900	M	M	M	M	M	M	M	M
Consulting	60,900	M	M	M	M	M	67,400	90,000	M
Other/no response	62,800	65,500	M	M	M	M	55,300	55,500	M

1/ Totals include individuals whose race was specified as "other" and individuals from whom no response was received.

2/ Individuals who are included in the ethnic category "Hispanic" also may have been included in one of the race categories.

KEY: M = Median salaries were not computed for groups with fewer than 20 individuals reporting salary.

NOTES: All numbers in the table are estimates derived from a sample.

Median salaries were computed only for full-time employed civilians.

SOURCE: National Science Foundation/SRS, 1991 Survey of Doctorate Recipients

Table 29. Median annual salaries of employed doctoral scientists and engineers, by employment-related characteristics and citizenship status: 1991

Characteristics	Total 1/	U.S. citizen			Non-U.S. citizen		
		Total	Native	Naturalized	Total	Permanent resident	Temporary resident
Total	$60,700	$61,100	$60,700	$65,600	$53,400	$55,200	$46,300
Sector of employment:							
Business/industry, total	70,200	70,700	70,700	70,400	58,300	60,000	52,000
Not self-employed	70,000	70,500	70,600	70,300	58,100	59,500	51,800
Self-employed	72,900	73,400	72,900	77,000	70,000	70,400	M
Educational institution	56,300	57,000	56,400	62,600	48,700	50,900	39,900
Univ./4-yr college	56,800	57,600	56,900	63,200	48,900	51,400	39,800
Other	50,800	51,100	51,000	51,700	39,300	39,100	M
Federal Govt. (civilian)	60,300	60,400	60,500	58,700	50,800	50,700	M
State/local govt.	47,500	48,200	48,000	49,800	43,000	45,000	M
Hospitals/clinics	50,600	50,600	50,400	53,300	50,300	50,700	M
Other nonprofits	59,600	60,200	60,300	57,400	50,800	55,300	M
Other/no response	75,400	75,100	70,700	M	80,600	M	M
Years of prof. experience:							
Less than 5	46,000	45,800	45,600	50,700	47,300	48,300	45,100
5-9	51,900	51,600	51,200	55,600	54,600	55,100	49,400
10-14	60,400	60,300	59,900	65,700	63,900	64,400	M
15-19	65,600	65,500	65,200	68,000	75,300	75,500	M
20-24	71,000	71,100	71,100	72,200	70,500	68,600	M
25-29	74,800	74,800	74,500	77,200	73,400	73,100	M
30-34	77,200	77,500	75,500	83,900	M	M	M
35 or more	81,100	81,100	80,700	90,400	M	M	M
No response	60,700	60,500	58,700	M	M	M	M
Primary work activity:							
Research and development	60,700	61,600	60,900	65,500	53,900	55,600	46,100
Basic research	56,800	58,400	57,500	63,800	48,900	51,300	32,300
Applied research	60,800	61,600	61,100	64,900	54,400	55,500	50,100
Development	65,800	67,800	67,500	68,700	59,800	60,200	51,600
Management/administration	74,800	74,800	74,300	78,100	75,000	75,300	M
R&D	80,400	80,400	80,500	80,100	78,000	78,600	M
Other	67,300	67,200	66,500	72,600	68,800	68,600	M
Teaching	54,200	55,000	53,900	59,600	48,900	50,700	42,200
Professional services	57,200	57,700	55,900	73,400	50,300	50,900	M
Report, statistical, and computing activities	55,800	56,200	55,400	63,600	50,600	52,600	M
Consulting	70,300	70,600	70,900	65,000	60,200	65,100	M
Other/no response	61,200	62,000	61,900	62,300	55,000	51,700	M

1/ Totals include individuals for whom citizenship was unspecified or from whom no response was received.

KEY: M = Median salaries were not computed for groups with fewer than 20 individuals reporting salary.

NOTES: All numbers in the table are estimates derived from a sample.

Median salaries were computed only for full-time employed civilians.

SOURCE: National Science Foundation/SRS, 1991 Survey of Doctorate Recipients

Table 30. Median annual salaries of employed doctoral scientists and engineers, by employment-related characteristics and employment sector: 1991

Characteristics	Total 1/ employed	Education		Business/industry			Government		Nonprofit 2/
		Total	Univ/4-yr colleges	Total	Not self-employed	Self-employed	Federal civilian	State/ local	
Total	$60,700	$56,300	$56,800	$70,200	$70,000	$72,900	$60,300	$47,500	$53,300
Field of doctorate:									
Sciences	59,000	55,200	55,400	69,100	68,300	72,100	59,700	47,000	52,200
Physical sciences	65,100	61,100	61,400	68,800	68,500	72,700	61,700	45,400	63,300
Chemistry	63,200	56,500	57,100	67,000	66,800	71,700	61,300	45,800	55,100
Physics/Astronomy	67,100	64,500	64,900	73,000	72,600	90,700	62,700	M	67,900
Mathematical sciences	60,800	56,700	57,500	70,700	70,100	96,900	70,300	M	M
Mathematics	60,100	55,800	56,500	70,600	70,000	M	74,200	M	M
Statistics/probability	62,400	60,000	60,000	70,800	70,300	M	M	M	M
Computer/info spec	68,100	63,600	63,600	75,600	75,600	M	M	M	M
Environmental sciences	60,200	55,600	55,800	70,400	70,500	M	62,200	40,800	55,900
Earth sciences	60,300	55,400	55,600	72,300	72,300	M	62,700	42,000	M
Oceanography	60,400	56,000	56,400	67,400	M	M	60,300	M	M
Atmospheric sciences	58,300	51,900	51,900	M	M	M	M	M	M
Life sciences	55,500	52,100	52,500	65,200	65,400	60,800	54,500	47,200	57,300
Biological sciences	55,500	52,000	52,500	65,500	65,300	75,500	54,500	46,400	57,400
Agricultural sciences	51,500	50,100	50,000	55,600	57,200	48,200	54,200	45,800	M
Medical sciences	59,500	55,000	55,200	70,900	72,100	65,600	57,000	53,000	58,100
Psychology	55,500	53,400	53,400	70,500	65,400	75,100	54,700	48,500	48,900
Social sciences	56,100	55,100	55,100	70,500	70,600	65,900	66,000	47,900	52,200
Economics	64,300	60,400	60,700	90,200	90,300	90,100	68,500	51,500	M
Sociology/anthropology	50,500	51,300	51,400	50,000	50,100	45,600	52,400	42,500	40,800
Other social sciences	55,200	52,500	52,300	73,000	70,700	100,000	67,400	46,900	55,600
Field of doctorate:									
Engineering	70,200	67,800	67,900	71,600	70,900	75,600	65,400	50,700	72,700
Aeronautical/astronautical	73,200	72,300	72,300	75,600	72,000	M	M	M	M
Chemical	71,700	66,200	66,200	74,700	74,300	M	M	M	M
Civil	65,200	66,400	66,400	64,900	65,500	62,300	63,900	M	M
Electrical/electronic	74,200	72,800	73,000	75,900	75,900	100,000	70,800	M	70,500
Materials science	65,000	70,700	70,700	63,000	63,200	M	M	M	M
Mechanical	68,900	67,200	67,300	73,200	72,300	M	59,900	M	M
Nuclear	70,400	70,500	70,700	67,700	67,600	M	M	M	M
Systems design	71,300	69,000	69,000	72,800	72,200	M	M	M	M
Other	68,100	66,400	67,000	70,500	70,400	M	61,200	M	M

See explanatory information and SOURCE at end of table.

Table 30. Median annual salaries of employed doctoral scientists and engineers, by employment-related characteristics and employment sector: 1991

Characteristics	Total 1/ employed	Education		Business/industry			Government		Nonprofit 2/
		Total	Univ/4-yr colleges	Total	Not self-employed	Self-employed	Federal civilian	State/local	
Years of prof. experience:									
Less than 5	46,000	42,100	42,100	53,100	53,100	55,700	44,400	40,000	43,000
5-9	51,900	46,900	46,800	60,900	60,800	65,500	48,700	45,700	50,200
10-14	60,400	54,300	55,100	70,600	70,300	75,600	57,500	50,000	56,600
15-19	65,600	60,200	60,500	76,200	76,000	80,200	64,400	49,300	60,300
20-24	71,000	65,800	66,600	82,400	82,000	90,300	68,000	55,500	72,500
25-29	74,800	73,000	73,100	85,400	90,000	60,800	72,400	55,600	66,000
30-34	77,200	73,900	74,200	89,800	91,600	80,300	70,300	M	80,700
35 or more	81,100	83,500	84,000	80,700	80,600	90,200	85,700	M	70,900
No response	60,700	57,700	61,000	61,000	61,400	M	M	M	M
Primary work activity:									
Research and development	60,700	57,700	57,700	65,100	65,100	75,600	57,200	43,000	60,000
Basic research	56,800	55,900	55,900	63,200	63,100	M	55,400	50,100	56,000
Applied research	60,800	60,000	60,000	64,100	63,900	80,700	57,100	42,900	60,500
Development	65,800	60,200	60,000	66,500	66,400	70,500	67,200	M	65,700
Management/administration	74,800	70,300	70,900	85,900	86,400	65,700	69,000	52,800	60,800
R&D	80,400	80,300	80,400	86,100	86,700		69,500	55,100	75,700
Other	67,300	68,300	69,400	85,200	85,600	60,800	68,300	51,100	54,500
Teaching	54,200	54,200	55,100	60,800	M	M	M	M	M
Professional services	57,200	53,700	50,700	75,300	60,600	80,000	55,300	46,300	48,000
Reporting, statistical, and computing activities	55,800	50,600	50,600	60,700	61,900	50,900	57,900	44,100	52,600
Consulting	70,300	54,900	58,000	72,900	72,200	75,400	M	M	63,500
Other/no response	61,200	52,800	53,600	65,600	67,000	60,400	57,200	45,900	50,200

1/ Totals include individuals who work in employment sectors other than education, business/industry, government, and nonprofit organizations; they also include individuals for whom no response was received.

2/ Nonprofit [organizations] include hospitals and clinics

KEY: M = Median salaries were not computed for groups with fewer than 20 individuals reporting salary.

NOTES: All numbers in the table are estimates derived from a sample.

Median salaries were computed only for full-time employed civilians.

SOURCE: National Science Foundation/SRS, 1991 Survey of Doctorate Recipients

Table 31. Median annual salaries of employed doctoral scientists and engineers, by employment-related characteristics and primary work activity: 1991

Characteristics	Total empl'd	Research & development				Mgmt/administration of--			Teaching	Prof services	Consulting	Other/no response
		Total	Basic	Applied	Devlpt/ design	Total	R&D	Other				
Total	$60,700	$60,700	$56,800	$60,800	$65,800	$74,800	$80,400	$67,300	$54,200	$57,200	$70,300	$60,200
Field of degree:												
Sciences	59,000	59,900	55,800	60,300	64,400	71,700	79,900	64,400	52,300	56,600	69,500	57,300
Physical sciences	65,100	62,500	60,400	62,600	65,300	80,800	83,000	75,200	57,200	75,800	75,500	64,300
Chemistry	63,200	60,600	58,500	60,700	62,400	78,600	80,000	70,700	53,300	70,100	74,100	64,400
Physics/astronomy	67,100	65,500	62,500	65,500	68,300	86,300	89,300	83,300	61,500	80,600	75,900	63,400
Mathematical sciences	60,800	64,900	59,100	69,900	63,900	88,400	100,100	75,500	53,200	M	69,300	65,800
Mathematics	60,100	65,500	59,500	69,500	65,400	85,700	97,700	75,600	52,400	M	M	65,600
Statistics/probability	62,400	61,700	58,100	70,200	M	100,800	M	M	57,000	M	M	70,200
Computer/info spec	68,100	68,900	67,400	64,700	75,500	94,100	96,300	86,800	60,700	M	M	80,200
Environmental sciences	60,200	60,300	60,000	60,200	M	72,000	74,400	60,300	53,500	M	70,200	55,400
Earth sciences	60,300	61,900	60,100	62,300	M	73,000	75,900	60,500	53,000	M	70,500	55,400
Oceanography	60,400	56,600	56,900	54,400	M	M	M	M	M	M	M	M
Atmospheric sciences	58,300	55,600	M	51,800	M	M	M	M	M	M	M	M
Life sciences	55,500	54,000	52,100	55,500	56,900	70,600	75,200	63,800	50,700	67,500	62,500	50,600
Biological sciences	55,500	54,500	52,400	56,600	56,100	70,200	73,500	62,600	50,700	77,600	63,500	50,800
Agricultural sciences	51,500	50,500	45,800	50,600	54,200	72,600	75,400	72,300	49,500	M	52,500	48,800
Medical sciences	59,500	58,400	54,000	59,600	67,900	70,900	80,300	61,200	51,400	62,700	70,100	54,700
Psychology	55,500	60,000	58,700	55,800	65,200	58,400	67,200	56,300	51,200	55,200	65,400	55,000
Social sciences	56,100	60,400	58,300	61,100	50,200	67,400	69,900	66,600	52,000	51,500	70,300	55,900
Economics	64,300	69,700	69,900	69,200	M	83,500	90,100	80,900	56,700	M	80,200	70,800
Sociology/anthropology	50,500	50,600	51,500	48,400	M	57,100	63,400	52,600	50,300	M	M	48,200
Other social sciences	55,200	57,500	51,700	61,600	M	68,300	70,400	66,400	50,800	52,600	67,000	60,000
Engineering	70,200	65,700	65,800	64,600	70,000	85,600	83,600	90,500	66,500	94,200	72,000	70,400
Aeronautical/astronautical	73,200	70,400	M	68,500	70,400	92,700	94,200	M	73,200	M	M	M
Chemical	71,700	65,300	65,500	65,300	65,300	85,500	80,400	90,500	65,900	M	70,500	80,200
Civil	65,200	63,700	M	64,300	65,600	79,700	70,900	88,700	64,800	M	60,600	62,000
Electrical/Electronic	74,200	70,300	73,900	67,000	72,300	95,300	95,000	98,900	69,500	M	78,200	75,100
Materials science	65,000	60,600	57,800	61,600	60,100	88,000	86,700	M	67,000	M	M	70,100
Mechanical	68,900	62,400	61,200	60,700	66,000	85,200	82,000	90,800	66,700	M	75,000	73,500
Nuclear	70,400	64,000	M	63,700	M	M	M	M	M	M	M	M
Systems design	71,300	66,900	M	M	M	M	M	M	56,800	M	M	M
Other	68,100	65,600	70,400	62,300	69,400	75,400	75,600	74,700	63,500	M	75,800	62,500
Years of prof. experience:												
Less than 5	46,000	48,900	42,900	50,500	54,600	48,000	55,200	46,500	41,200	42,400	52,300	44,400
5-9	51,900	54,100	47,700	56,500	60,600	57,100	63,900	50,200	44,900	55,200	65,200	50,700
10-14	60,400	61,200	56,400	63,000	67,800	70,700	77,600	60,200	50,800	60,900	69,900	60,300
15-19	65,600	67,900	66,900	67,700	70,900	75,300	80,900	67,700	55,300	65,100	80,100	65,700
20-24	71,000	74,700	77,000	70,700	75,900	82,400	90,000	75,400	61,200	75,100	80,200	71,300

See explanatory information and SOURCE at end of table.

BEST COPY AVAILABLE

Table 31. Median annual salaries of employed doctoral scientists and engineers, by employment-related characteristics and primary work activity: 1991

Characteristics	Total empl'd	Research & development				Mgmt/administration of--			Teaching	Prof services	Consulting	Other/no resp
		Total	Basic	Applied	Devlpt/ design	Total	R&D	Other				
25-29	74,800	78,100	80,000	75,800	78,900	90,200	95,700	85,200	66,700	58,200	75,500	72,600
30-34	77,200	80,100	84,000	75,800	75,400	93,000	95,100	91,500	69,300	75,300	M	70,400
35 or more	81,100	85,700	94,200	80,900	M	87,100	80,800	97,700	79,100	M	80,900	72,500
No response	60,700	62,200	M	57,800	M	M	M	M	57,100	M	M	54,300
Sector of employment:												
Business/Industry, total	70,200	65,100	63,200	64,100	66,500	85,900	86,100	85,200	60,800	75,300	72,900	64,500
Not self-employed	70,000	65,100	63,100	63,900	66,400	86,400	86,700	85,600	M	60,600	72,200	65,200
Self-employed	72,900	75,600	M	80,700	70,500	65,700	M	60,800	M	80,000	75,400	60,200
Educational institution	56,300	57,700	55,900	60,000	60,200	70,300	80,300	68,300	54,200	53,700	54,900	51,600
Univ./4-yr college	56,800	57,700	55,900	60,000	60,000	70,900	80,400	69,400	55,100	50,700	58,000	51,900
Other	50,800	M	M	M	M	60,400	M	60,600	48,000	58,000	M	M
Federal Govt. (civilian)	60,300	57,200	55,400	57,100	67,200	69,000	69,500	68,300	M	55,300	M	57,300
State/local govt	47,500	43,000	50,100	42,900	M	52,800	55,100	51,100	M	46,300	M	45,000
Hospitals/clinics	50,600	57,000	51,300	57,500	M	54,200	M	53,300	M	48,400	M	50,800
Other nonprofits	59,600	60,300	56,600	60,700	67,000	65,000	79,300	55,600	M	44,300	70,200	50,700
Other/no response	75,400	65,300	M	M	M	M	M	M	M	M	M	80,200

KEY: M = Median salaries were not computed for groups with fewer than 20 individuals reporting salary.

NOTES: All numbers in the table are estimates derived from a sample.

Median salaries were computed only for full-time employed civilians.

SOURCE: National Science Foundation/SRS, 1991 Survey of Doctorate Recipients

Table 32. Median annual salaries of employed doctoral scientists and engineers, by employment-related characteristics and broad field of doctorate: 1991

Characteristics	Total	All sciences	Physical sciences	Math sciences	Comp/ info spec	Environ sciences	Life sciences	Psycho-logy	Social sciences	All engineering
Total	$60,700	$59,000	$65,100	$60,800	$68,100	$60,200	$55,500	$55,500	$56,100	$70,200
Years of prof. experience:										
Less than 5	46,000	43,700	47,700	42,700	61,300	41,400	41,600	42,500	42,600	55,200
5-9	51,900	50,200	55,300	50,400	67,800	50,500	47,200	50,600	48,100	62,000
10-14	60,400	58,300	63,600	55,900	75,600	60,100	55,600	55,500	57,000	70,800
15-19	65,600	63,300	70,000	63,200	80,400	63,900	61,100	60,200	62,100	75,100
20-24	71,000	69,000	72,800	71,300	M	73,200	66,700	64,200	64,900	80,700
25-29	74,800	73,100	75,300	70,500	M	76,400	70,900	64,300	73,700	82,900
30-34	77,200	75,300	75,200	80,000	M	M	73,800	74,700	74,500	85,600
35 or more	81,100	80,500	80,200	M	M	M	80,700	79,400	81,800	100,000
No response	60,700	57,400	65,000	M	M	M	52,700	M	60,500	72,200
Sector of employment:										
Business/industry, total	70,200	69,100	68,800	70,700	75,600	70,400	65,200	70,500	70,500	71,600
Not self-employed	70,000	68,300	68,500	70,100	75,600	70,500	65,400	65,400	70,600	70,900
Self-employed	72,900	72,100	72,700	96,900	M	M	60,800	75,100	65,900	75,600
Educational institution	56,300	55,200	61,100	56,700	63,600	55,600	52,100	53,400	55,100	67,800
Univ./4-yr college	56,800	55,400	61,400	57,500	63,600	55,800	52,500	53,400	55,100	67,900
Other	50,800	50,900	53,700	44,600	M	M	48,000	52,900	53,400	M
Federal Govt. (civilian)	60,300	59,700	61,700	70,300	M	62,200	54,500	54,700	66,000	65,400
State/local govt	47,500	47,000	45,400	M	M	40,800	47,200	48,500	47,900	50,700
Hospitals/clinics	50,600	50,500	60,500	M	M	M	57,700	48,800	44,000	M
Other nonprofits	59,600	55,600	63,500	M	M	55,900	56,700	50,000	52,400	72,200
Other/no response	75,400	76,600	M	M	M	M	75,300	M	85,500	M
Primary work activity:										
Research and development	60,700	59,900	62,500	64,900	62,900	60,300	54,000	60,000	60,400	65,700
Basic research	56,800	55,800	60,400	59,100	67,400	60,000	52,100	58,700	58,300	65,800
Applied research	60,800	60,300	62,600	69,900	64,700	60,200	55,500	55,800	61,100	64,600
Development	65,800	64,400	65,300	63,900	75,500	M	56,900	65,200	50,200	70,000
Management/administration	74,800	71,700	80,800	88,400	94,100	72,000	70,600	58,400	67,400	85,600
R&D	80,400	79,900	83,000	100,100	96,300	74,400	75,200	67,200	69,900	83,600
Other	67,300	64,400	75,200	75,500	86,800	60,300	63,800	56,300	66,600	90,500
Teaching	54,200	52,300	57,200	53,200	60,700	53,500	50,700	51,200	52,000	66,500
Professional services	57,200	56,600	75,800	M	M	M	67,500	55,200	51,500	94,200
Reporting, statistical, and computing activities	55,800	55,000	59,700	65,600	80,000	55,600	48,600	50,700	50,800	60,800
Consulting	70,300	69,500	75,500	69,300	M	70,200	62,500	65,400	70,300	72,000
Other/no response	61,200	60,200	65,000	70,700	M	55,200	51,400	60,200	61,500	72,500

KEY: M = Median salaries were not computed for groups with fewer than 20 individuals reporting salary.

NOTES: All numbers in the table are derived from a sample.

Median salaries were computed only for full-time employed civilians.

SOURCE: National Science Foundation/SRS, 1991 Survey of Doctorate Recipients

Appendix A.
Technical Notes

APPENDIX A. TECHNICAL NOTES

The data in this report come from the Longitudinal Doctorate Project, a longitudinal data file of information on the supply and utilization of science and engineering (S&E) doctoral personnel in the United States. Current information on the characteristics of this population is based on the 1991 Survey of Doctorate Recipients (SDR). The SDR has been conducted biennially since 1973 by the National Research Council (NRC) for the National Science Foundation (NSF). Data from the SDR and the NRC's Doctorate Records File (DRF—an ongoing census of research doctorates earned in the United States since 1920) are combined to create a longitudinal file on the demographic and employment characteristics of doctoral scientists and engineers.

THE SAMPLING FRAME

For the 1991 SDR the sampling frame for scientists and engineers was selected from the DRF to include individuals who—

1. Had earned a doctoral degree from a U.S. college or university in a science or engineering field ("segment 1" cases);
2. Were U.S. citizens or, if non-U.S. citizens, indicated they had plans to remain in the United States after degree award; and
3. Were under 76 years of age.

In past survey years (1973 through 1989), the sampling frame also included individuals with—

- U.S.-earned doctorates in education and professional fields who were employed in S&E ("segment 2" cases) and
- foreign-earned doctorates who were working in S&E in the United States ("segment 3" cases).

Thus, between 1973 and 1989, the frame included individuals who either by education or employment could be classified as doctoral S&Es.

During this period, however, little attempt was made to update the frame with additions to segments 2 and 3, because of difficulty in securing a complete enumeration of these individuals. Coverage of these two segments had further dwindled because of the biennial cohort adjustments. (In 1989 these segments accounted for 1.2 percent and 2.3 percent of the sample, respectively.) As a result, segments 2 and 3 were dropped from the sampling frame in 1991, and only individuals who had earned a U.S. doctorate in an S&E field were included ("segment 1" cases).

Also for 1991 the time limitation for inclusion in the sampling frame was changed from cohort based to age based. Prior to 1991 individuals were dropped from the frame after 42 years had passed since they received their doctorate. In 1991 individuals were dropped after they attained the age of 76. This change was made to accommodate policy interest in retirement patterns and to make the frame compatible with other NSF surveys of S&E personnel.

SAMPLE REDUCTION AND REDESIGN

For the 1991 survey it was decided that more emphasis would be placed on attaining a higher response rate. To achieve this goal, cost savings from a reduction in sample size were redirected toward more intensive followup efforts. This redirection resulted in a reduction of the SDR sample size from 73,611 in 1989 to 37,996 in 1991, representing a decrease of approximately 50 percent. However, because a higher response rate was attained in 1991—87 percent compared with 55 percent in 1989—the effective sample size for 1991 was reduced by only 22 percent.

At the time the sample was reduced, it was also redesigned. The redesign goals were to (1) restratify the sampling frame into fewer sampling cells; (2) introduce greater homogeneity in sampling rates across cells; and (3) ensure that oversampling reflected current analytic needs. Hence, the 1991 sampling frame was restratified into approximately 240 cells (down from over 2,000 in the 1989 frame) on the basis of three variables: field of degree, sex, and group (a combination of degree field, sex, handicap status, race/ethnic group, and U.S.-born vs. foreign-born status).

In 1991 the general form of the SDR sample was a stratified, proportional design with a minimum cell size requirement. This design effectively forced some small cells to be oversampled. However, sampling rates were constrained to a 5 to 1 range in order to control the disparity in sampling weights. In earlier survey years these sampling rates had been allowed to vary widely.

In selecting the sample, we deleted a portion of the core that is conveyed from year to year and selected a new sample from cells containing the cohort graduating since 1989. The overall sampling rate for scientists and engineers was 7.1 percent, yielding a final sample size of 37,996 drawn from a sampling frame of 537,425.

Data Collection

Between 1973 and 1989, data collection for the SDR was accomplished through a mail survey. In 1991 there were two phases of data collection: a mail survey and telephone followup interviewing. The mail survey consisted of three waves of a personalized mailing package, with a reminder postcard between waves one and two. The first wave mailing was sent in October 1991, with followup mailings in December 1991 and January 1992.

Phase 2 consisted of telephone interviews. For this phase a 60-percent subsample of nonrespondents to the mail survey was selected and followed up using computer-assisted telephone interviewing (CATI). In addition to questions on the mail survey, several others were added to the telephone interview regarding address verification and reasons for not returning the mail questionnaire. Telephone interviewing was conducted between March 1992 and July 1992.

Survey Content

It is important to note that survey content, i.e., the wording of the questions, did not change between 1989 and 1991, with the exception of the question about disabilities (question 24 in 1989 and questions 30–33 in 1991). However, there was a change to the reference period. In 1991 respondents were asked about September of the survey year. In predecessor years the reference month was February. Therefore, there is a greater time interval between the 1989 and 1991 surveys (31 months) compared with the interval in earlier years (24 months).

Although the content remained the same between 1989 and 1991, the format and layout of the questionnaire was changed to a more "respondent friendly" design. The effects of this change are difficult to identify, but in some cases item nonresponse rates were reduced because of improved instructions to the respondent.

Response Rates

In 1991 the final response rate for the SDR was approximately 80 percent (87 percent weighted). This rate marked a 25-percentage-point increase from the 1989 final response rate of 55 percent. The increase is due primarily to the addition of CATI to the data collection plan but also to changes to the mail survey that made it more productive. The higher response rate should improve the quality of the 1991 SDR estimates, because it reduces the likelihood of nonsampling errors in the estimates caused by nonresponse. Note, however, that the improved response rates and the expected lessening of bias should be considered additional sources of change in time series and longitudinal analysis.

Reliability[1]

The statistics in this report are subject to both sampling and nonsampling error. Sampling variability occurs because a sample rather than an entire population is surveyed. Sampling errors are determined using a generalized procedure. Approximations were required in order to derive sampling errors that would be applicable to a wide variety of items. As a result,

[1] The data and material on sampling reliability presented here are from National Academy of Sciences, Office of Scientific and Engineering Personnel, The Methodological Report of the 1991 Survey of Doctorate Recipients (Washington, DC: NAS, forthcoming).

these sampling errors provide an indication of the order of magnitude of a sampling error rather than a precise sampling error for any specific item. The sampling error tables are derived from standard error equations and special parameters developed by the Bureau of the Census.

Table A-3 provides information that permits the user to calculate approximate standard errors for totals using the formula—

$$S_x=[ax^2+bx]^{1/2}$$

where "x" equals the estimated total and "a" and "b" are regression coefficients. Values of "a" and "b" by S&E fields for selected groups are given.[2]

Tables A-4 through A-7 present approximate standard errors associated with total subgroup size for different segments of the doctoral population. Tables A-8 through A-11 present standard error estimates for the estimated percent[3] of a subgroup having a particular characteristic.

The approximate standard error of percent variables may be estimated directly using the formula:

$$S_p = p[b((1/x)-(1/y))]^{1/2}$$

where "p" equals the percent possessing the specific characteristic and "x" and "y" represent the enumerator and denominator, respectively, or the ratio that yields the observed percent.

In addition to sampling error, data are subject to nonsampling error. Sources of nonsampling error include nonresponse bias, which arises when individuals who do not respond to a survey differ significantly from those who do, and measurement error, which arises when we are not able to precisely measure the variables of interest. These sources of error are much harder to estimate than are sampling errors.

There is little direct information about measurement errors in the SDR. However, experience with minor question changes indicates that some variables may be subject to measurement problems. For example, in 1987 the question on primary work activity was reworded by providing definitions of basic and applied research.

Notes on the Tables

The following notes facilitate use of data in the detailed tables.

Because of the changes (described above) introduced into the 1991 SDR, users are advised that data in this report are not comparable with SDR data published by NSF for prior survey years. Additionally, demographic and employment characteristics are presented by field of doctorate in this report rather than by field of employment as in prior publications.

Field of doctorate is the field of degree as specified by the respondent in the Survey of Earned Doctorates (SED) at the time of degree conferral.

Field of employment was derived primarily from responses to question 9 that requested the name and title of the specialty most closely related to the respondent's principal employment. The code was selected by respondents from the Employment Specialists List included with the questionnaire.

Sector of employment was based on responses to question 7. The category "educational institutions" includes junior colleges; 2-year colleges; technical institutes; medical schools (including university-affiliated hospitals or medical centers); 4-year colleges or universities; and elementary, middle, or secondary school systems.

Geographic division was based primarily on responses to question 6 on the location of employment. Individuals not reporting place of employment were classified by their mailing address.

[2] The generalized error estimates in this report were based on a set of assumptions that in the case of some small subpopulations did not appear to hold. In such cases the parameters listed for a higher level field within a demographic group or a higher level demographic group within a field were considered a useful substitute as a generalized error estimate.

[3] Based on the ratio of two estimated totals, where the numerator is a subset of the denominator.

Place of Birth[4] categories were defined as follows:

U.S.	=	Fifty states plus the Virgin Islands, Panama
Latin	=	Mexico, Central America, Cuba & Islands
South America	=	Argentina, Bolivia, Brazil, Chile, Colombia, Ecuador, Guyana, Paraguay, Peru, Uruguay, Venezuela
Northern Europe	=	Denmark, England, Finland, Iceland, Republic of Ireland, Norway, Scotland, Sweden, Wales
Central Europe	=	Austria, West Germany, Germany Unspecified, Italy, Liechtenstein, Malta
Western Europe	=	Belgium, France, Monaco, The Netherlands, Portugal, Spain, Switzerland
Eastern Europe	=	Bulgaria, Czechoslovakia, Greece, Hungary, Poland, Romania, U.S.S.R. Yugoslavia
Eastern Asia	=	Burma, People's Republic of China, Taiwan, China unspecified, Hong Kong, Japan, Khmer Republic, Republic of Korea, Korea unspecified, Laos, Macao, Malaysia, Singapore, Thailand, Democratic Republic of Vietnam, Republic of Vietnam
Western Asia	=	Afghanistan, Bahrain, Bangladesh, Cyprus, India, Iran, Iraq, Israel, Jordan, Kuwait, Lebanon, Nepal, Pakistan pre-1971, Palestine, Saudi Arabia, Sri Lanka, Syria, Turkey
Australasia	=	Australia, Indonesia, New Zealand, Philippines

Primary work activity was determined from responses to question 12. "Development" includes that development of equipment, products, and systems as well as the design of equipment, processes, and models. The 1987 questionnaire was reworded to include definitions of basic and applied research.

Federal support was determined from responses to question 17. The reference period used for this question changed in 1987. The 1989 and 1987 questionnaires used "the past year" as the reference period, whereas prior surveys varied from the month of February to the week defined by a particular day in February. Therefore, the data from survey years prior to 1987 are not comparable.

Tenure status was obtained from the response to question 11. The question was reworded in 1979 to gather information on tenure track in addition to the basic question on tenure. Due to the introduction of additional categories in 1979, the data from prior survey years are not comparable.

Salary data were derived from responses to question 14, which requested information regarding annual salary before deductions for income tax, social security, retirement, etc., but excluding bonuses, overtime, summer teaching, or other payment for professional work. Salaries reported are median annual salaries, rounded to the nearest $100 and computed for full-time employed civilian scientists and engineers only. Differences between calendar-year salaries (11 to 12 months) and academic-year salaries (9 to 10 months) for individuals employed in educational institutions have been accommodated by multiplying academic-year salaries by eleven-ninths to adjust to a calendar-year scale. For individuals not reporting whether their salary was for an academic or calendar year, calendar year was used as the default category. Approximately 10 percent of full-time employed scientists and engineers failed to make this distinction, and approximately half of those had not reported any salary.

Racial/ethnic data were based on questions relating to race and Hispanic heritage. The race/ethnic data appearing in the time-series tables of this report may differ significantly from estimates published prior

[4] As specified by the respondent

to 1983. At that time an analysis of racial/ethnic information found that there were inaccuracies in these data, especially in the reported numbers of Hispanics and Native Americans. Accordingly, racial/ethnic data for all previous survey years were modified before being entered on the 1983 files. For subsequent doctorate recipients racial/ethnic identity is not changed once an SED response has already been received. As a result of these modifications, race/ethnic data have become more accurate and stable over time.

Selected Employment Characteristics

This report contains several derived statistical measures reflecting labor force and employment rates as of September 1991:

Labor force participation rate. The labor force is defined as those employed (E) and those unemployed but seeking work (U). The labor force participation rate (R_{LF}) is the ratio of the labor force to the population (P).

$$R_{LF} = (E+U)/P$$

S&E employment rate. The S&E employment rate (R_{SE}) measures the ratio of those holding jobs in science or engineering (E_{SE}) to the total employment (E_r) of scientists and engineers, which includes those holding non-S&E jobs.

$$R_{SE} = (E_{SE})/E_r$$

Unemployment rate. The unemployment rate (R_U) shows the ratio of those who are unemployed but seeking employment (U) to the total labor force (E+U).

$$R_U + U(E+U)$$

S&E underemployment rate. The S&E underemployment rate (R_{UE}) shows the ratio of those who are working part-time but seeking full-time jobs (E_{PTS}) or who are working in a non-S&E job when an S&E job would be preferred (E_{NSP}) to total employment (E_T).

$$R_{UE}=(E_{PTS} +E_{NSP})/E_T$$

S&E underutilization rate. The S&E underutilization rate (R_{UZ}) shows the proportion of those in the total labor force (E+U) who are either unemployed but seeking employment (U), working part-time but seeking full-time jobs (E_{PTS}), or working involuntarily in a non-S&E job (E_{NSP}).

$$R_{UZ} = (U+E_{PTS} +E_{NSP})/(E+U)$$

Table A-1. Stratification, sample, and survey responses of doctoral scientists and engineers: 1991 Survey of Doctorate Recipients

Item	Sampling frame	Survey sample	In-scope sample	Out-of-scope sample	Usable response	Response rate	Weighted response rate
Field of doctorate						[In percent]	
Chemistry	61,827	3,464	3,294	170	2,664	80.9	90.5
Physics/astronomy	38,909	2,270	2,124	146	1,662	78.2	87.4
Environmental sciences	15,628	1,051	963	88	775	80.5	88.8
Mathematical sciences	24,870	1,552	1,439	113	1,125	78.2	86.9
Computer/information specialist	5,917	545	514	31	421	81.9	89.1
Agricultural sciences	25,924	1,626	1,472	154	1,184	80.4	89.2
Medical sciences	14,101	2,008	1,917	91	1,553	81.0	90.8
NIH biological sciences	58,369	7,682	7,325	357	5,873	80.2	90.1
Other biological sciences	44,137	2,348	2,237	111	1,838	82.2	91.2
Psychology	75,085	4,292	4,168	124	3,207	76.9	87.5
Economics	21,616	1,249	1,158	91	863	74.5	86.1
Anthropology/sociology/archeology	22,827	1,560	1,433	127	1,144	79.8	91.1
Other social sciences	38,820	2,177	2,013	164	1,516	75.3	85.3
Electrical/electronic engineering	18,867	1,456	1,371	85	1,077	78.6	85.2
Other engineering	63,505	4,716	4,358	358	3,418	78.4	86.3
Demographic characteristics							
U.S. born/unknown birthplace/ disabled	15,205	1,442	1,348	94	1,141	84.6	93.9
White/unknown race	397,343	25,123	24,366	757	19,405	79.6	90.1
Black	6,684	1,218	1,194	24	980	82.1	85.8
Asian	5,573	953	880	73	689	78.3	89.8
Hispanic	4,584	1,000	974	26	783	80.4	91.0
Native American	699	162	158	4	124	78.5	83.8
Foreign born:							
U.S. citizenship	36,711	3,217	3,069	148	2,437	79.4	88.9
Foreign/unknown citizenship	63,603	4,881	3,797	1,084	2,761	72.7	72.3
Sex:							
Male/unknown	433,227	29,169	27,387	1,782	21,509	78.5	88.0
Female	97,175	8,827	8,399	428	6,811	81.1	90.1
Total	530,401	37,996	35,786	2,210	28,320	79.1	88.4

SOURCE: National Science Foundation/SRS, 1991 Survey of Doctorate Recipients

BEST COPY AVAILABLE

Table A-2. Science/engineering field classification of specialties: 1991 Survey of Doctorate Recipients

Field	Specialty code
Total	000 to 799
Physical scientists	101 to 299
Chemists	200 to 299
Physicists/astronomers	101 to 199
Mathematical scientists	000 to 060, 082 to 099
Mathematicians	000 to 052, 060, 082 to 099
Statisticians	55
Computer specialists	071 to 081
Environmental scientists	301 to 399
Earth scientists	301 to 360, 388 to 394, 398, 399
Oceanographers	370, 397
Atmospheric scientists	381 to 383
Life scientists	599, 503 to 599
Biological scientists	540 to 599
Agricultural scientists	500, 503 to 519
Medical scientists	520 to 539
Psychologists	600 to 699
Social scientists	501, 700, 799
Economists	501, 720,725
Sociologists/anthropologists	700, 710
Other social scientists	703 to 709, 727 to 799
Engineers	400 to 499
Aeronautical/astronautical	400
Chemical	430
Civil	420, 480
Electrical/electronics	436, 437, 440, 445
Materials science	435, 475, 490, 497
Mechanical	470, 485
Nuclear	455
Systems design	476 to 478
Other engineers	410, 415, 450, 460, 465, 479, 486, 487, 498, 499

SOURCE: National Science Foundation, SRS

Table A-3. Listing of a and b parameters for selected demographic groups in science and engineering fields, 1991

Field of doctorate	Parameter	Total	Women	Whites	Asians	Blacks	Native Americans	Hispanic
Total	a	-0.000040	-0.000162	-0.000046	-0.000308	-0.000565	0.001911	0.002022
	b	21.4689	16.0395	21.3992	26.3793	14.7947	8.9392	13.2420
Sciences	a	-0.000047	-0.000168	-0.000053	-0.000379	-0.000576	0.002083	-0.000358
	b	21.2444	16.3629	21.8414	19.6828	15.0200	6.3871	13.7243
Physical sciences	a	-0.000217	-0.001729	-0.000237	-0.002101	-0.007405	0.051754	0.003186
	b	22.1247	16.2776	23.6313	29.0105	15.7126	10.6091	16.7405
Chemistry	a	-0.000364	-0.002518	-0.000405	-0.002597	-0.011267	0.051754 A	0.019557
	b	21.6871	17.9589	21.0060	23.1283	14.4987	10.6091 A	9.6169
Physics/astronomy	a	-0.000570	-0.000066	-0.000474	-0.007653	0.014677	0.051754 A	-0.025401
	b	23.6360	7.4174	24.9684	39.2317	12.2859	10.6091 A	24.5009
Mathematical sciences	a	-0.000884	0.003259	-0.001182	-0.001030	0.023508	0.002083 A	-0.047099
	b	23.5032	12.0755	27.5657	14.2650	4.4962	6.3871 A	25.0219
Mathematics	a	-0.000328	-0.001624	-0.000484	0.004844	-0.003314	0.002083 A	-0.037069
	b	26.0579	7.2766	30.3200	18.0273	5.3904	6.3871 A	19.9416
Statistics	a	-0.000340	0.001252	-0.000248	-0.004687	0.005395	0.168736	-0.014737
	b	23.8675	6.4457	23.2338	32.6180	12.8598	3.0735	19.7801
Computer/info spec	a	-0.000347	-0.000479	-0.000303	-0.004394	0.006472	0.195069	-0.012713
	b	21.9090	5.8403	22.5617	32.1624	12.6365	2.0101	18.4317
Environmental sciences	a	-0.000534	-0.000712	-0.000418	-0.007329	0.012293	0.002083 A	-0.019865
	b	24.3699	8.4136	25.4109	38.806	12.4428	6.3871 A	22.7503
Earth sciences	a	0.046170	-0.023790	0.059273	-0.007329 A	0.012293 A	0.002083 A	-0.019865 A
	b	12.1089	13.1610	14.0707	38.8060 A	12.4428 A	6.3871 A	22.7503 A
Oceanography	a	-0.000534 A	-0.000712 A	-0.000418 A	-0.007329 A	N	0.002083 A	-0.019865 A
	b	24.3699 A	8.4136 A	25.4109 A	38.8060 A	N	6.3871 A	22.7503 A
Atmospheric sciences	a	-0.000570	-0.000066	-0.000474	-0.007653	N	0.002083 A	-0.025401
	b	23.6360	7.4174	24.9684	39.2317	N	6.3871 A	24.5009
Life sciences	a	-0.000156	-0.000353	-0.000184	-0.000641	-0.001657	-0.002199	-0.000505
	b	20.9724	12.2959	21.9716	14.3233	9.9881	6.8153	10.5978
Biological sciences	a	-0.000215	-0.000480	-0.000247	-0.001056	-0.001364	0.021939	-0.000281
	b	19.8857	12.0613	20.2479	17.3018	10.1993	4.7534	12.0944
Agricultural sciences	a	-0.001662	-0.010363	-0.002067	-0.003313	-0.018394	-0.099896	0.026186
	b	33.5680	21.0480	37.0392	13.9667	13.5670	9.2264	8.6358
Medical sciences	a	-0.000343	-0.001325	-0.000472	-0.002044	-0.002052	-0.002199 A	0.014614
	b	10.1490	10.0358	10.6864	11.0676	4.1819	6.8153 A	4.1794
Psychology	a	-0.000305	-0.000850	-0.000330	-0.000671	-0.006866	0.002868	-0.005398
	b	22.7872	23.8418	23.4318	10.3770	15.9626	5.6129	10.3961
Social sciences	a	-0.000386	-0.001087	-0.000442	-0.000985	0.003150	0.014296	-0.001091
	b	32.0996	20.5630	32.4472	17.0224	12.3499	3.5447	15.4636
Economics	a	-0.001359	-0.011528	-0.001563	-0.004009	0.088648	0.014296 A	0.054175
	b	31.3072	27.7027	31.4323	14.8509	7.0933	3.5447 A	6.8502
Sociologists/anthropology	a	-0.000844	-0.002438	-0.000935	0.020166	-0.001857	0.014296 A	-0.005618
	b	18.9081	18.6110	18.2563	9.2809	8.6172	3.5447 A	7.5826

See explanatory information and SOURCE at end of table.

Table A-3. Listing of a and b parameters for selected demographic groups in science and engineering fields, 1991

Field of doctorate	Parameter	Total	Women	Whites	Asians	Blacks	Native Americans	Hispanic
Other social sciences	a	-0.000956	-0.002016	-0.001127	-0.001315	0.007344	0.014296 A	-0.018659
	b	37.2507	18.4625	38.5189	19.4854	9.0323	3.5447 A	20.0264
Engineering	a	-0.000276	-0.002961	-0.000370	-0.001930	-0.001799	0.348287	0.118698
	b	25.9982	7.4815	20.8007	48.1445	7.7532	0.6114	4.7629
Aeronautical/astronautical	a	-0.002286	-0.002961 A	-0.004282	0.000508	-0.001799 A	N	0.118698 A
	b	28.4435	7.4815 A	19.6285	24.1328	7.7532 A	N	4.7629 A
Chemical	a	-0.002081	-0.010756	-0.001348	0.009626	-0.001799 A	0.348287 A	0.020815
	b	23.9083	15.7624	23.7768	5.2814	7.7532 A	0.6114 A	17.0750
Civil	a	-0.000276 A	-0.023423	-0.002099	-0.017038	0.001440	0.348287 A	-0.003343
	b	25.9982 A	10.4049	11.5021	35.7031	4.5506	0.6114 A	8.2924
Electrical/Electronic	a	-0.001033	-0.015455	-0.001548	-0.002524	0.093250	0.348287 A	0.061090
	b	24.3507	8.4333	23.3378	28.1025	2.2558	0.6114 A	8.6194
Materials science	a	-0.000319	-0.025782	-0.003196	-0.012179	-0.001799 A	0.348287 A	0.746007
	b	24.9085	9.5704	27.1831	29.1379	7.7532 A	0.6114 A	1.0246
Mechanical	a	0.006371	-0.082499	0.017526	-0.015533	-0.001799 A	0.348287 A	0.516763
	b	30.7125	24.6952	21.7659	37.7328	7.7532 A	0.6114 A	4.8142
Nuclear	a	0.044200	-0.002961 A	0.026734	0.129390	-0.001799 A	N	0.118698 A
	b	31.1577	7.4815 A	34.8397	11.0073	7.7532 A	N	4.7629 A
Systems design	a	0.035176	-0.002961 A	0.058298	-0.001930 A	-0.001799 A	N	0.118698 A
	b	4.2756	7.4815 A	-9.2306	48.1445 A	7.7532 A	N	4.7629 A
Other	a	-0.001216	0.052997	-0.000370 A	0.004906	-0.001799 A	0.348287 A	0.113807
	b	19.4308	3.2849	20.8007 A	27.3758	7.7532 A	0.6114 A	3.6319

KEY: A = Direct estimates are not available; data shown are considered useful approximations.
N = No cases reported

SOURCE: National Science Foundation/SRS, 1991 Survey of Doctorate Recipients

Table A-4. Approximate standard errors of estimated number of doctoral scientists and engineers by field: 1991

Estimated number	Total	Sciences								Engineering						
		Total sciences	Physical science	Math science	Computer science	Environmental science	Life science	Psychology	Social science	Total engineering	Aeronautical/astronautical	Chemical	Civil	Electrical/electronic	Materials science	Mechanical
50	30	30	30	30	30	30	30	30	40	40	40	30	40	30	40	40
100	50	50	50	50	50	50	50	50	60	50	50	50	50	50	50	60
200	70	70	70	70	70	70	60	70	80	70	70	70	70	70	70	80
500	100	100	100	110	100	110	100	110	130	110	120	110	110	110	110	130
700	120	120	120	130	120	130	120	130	150	130	140	130	130	130	130	160
1,000	150	150	150	150	150	150	140	150	180	160	160	150	160	150	160	190
2,500	230	230	230	230	230	240	230	230	280	250	240	220	250	230	250	340
5,000	330	320	320	310	320	330	320	330	390	350	--	260	350	310	340	560
10,000	460	460	450	380	--	440	440	440	530	480	--	180	--	370	--	--
25,000	720	710	650	--	--	--	650	620	750	690	--	--	--	--	--	--
50,000	990	970	750	--	--	--	810	610	800	780	--	--	--	--	--	--
75,000	1,180	1,150	660	--	--	--	830	--	490	630	--	--	--	--	--	--
100,000	1,320	1,290	--	--	--	--	730	--	--	--	--	--	--	--	--	--
150,000	1,520	1,460	--	--	--	--	--	--	--	--	--	--	--	--	--	--
200,000	1,640	1,540	--	--	--	--	--	--	--	--	--	--	--	--	--	--
250,000	1,690	1,540	--	--	--	--	--	--	--	--	--	--	--	--	--	--
300,000	1,690	1,460	--	--	--	--	--	--	--	--	--	--	--	--	--	--
400,000	1,480	990	--	--	--	--	--	--	--	--	--	--	--	--	--	--

KEY: "--" = not applicable

SOURCE: National Research Council

Table A-5. Approximate standard errors of estimated number of women doctoral scientists and engineers by field: 1991

Estimated number	Total	Sciences								Engineering						
		Total sciences	Physical science	Math science	Computer science	Environmental science	Life science	Psychology	Social science	Total engineering	Aeronautical/ astronautical	Chemical	Civil	Electrical/ electronic	Materials science	Mechanical
50	30	30	30	20	20	20	20	30	30	20	20	30	20	20	20	30
100	40	40	40	40	20	30	40	50	50	30	--	40	30	30	30	40
200	60	60	60	50	30	40	50	70	60	40	--	--	--	30	30	--
500	90	90	90	80	50	60	80	110	100	50	--	--	--	--	--	--
700	110	110	100	100	--	70	90	130	120	60	--	--	--	--	--	--
1,000	130	130	120	120	--	90	110	150	140	70	--	--	--	--	--	--
2,500	200	200	170	--	--	--	170	230	210	10	--	--	--	--	--	--
5,000	280	280	200	--	--	--	230	310	280	--	--	--	--	--	--	--
10,000	380	380	--	--	--	--	300	390	310	--	--	--	--	--	--	--
25,000	550	550	--	--	--	--	290	250	--	--	--	--	--	--	--	--
50,000	630	630	--	--	--	--	--	--	--	--	--	--	--	--	--	--
75,000	540	530	--	--	--	--	--	--	--	--	--	--	--	--	--	--

KEY: "--" = not applicable

SOURCE: National Research Council

Table A-6. Approximate standard errors of estimated number of Black doctoral scientists and engineers by field: 1991

Estimated number	Total	Sciences								Engineering						
		Total sciences	Physical science	Math science	Computer science	Environmental science	Life science	Psychology	Social science	Total engineering	Aeronautical/astronautical	Chemical	Civil	Electrical/electronic	Materials science	Mechanical
200	50	50	50	40	--	--	40	50	50	40	--	--	--	60	--	--
500	90	90	80	--	--	--	70	80	80	60	--	--	--	--	--	--
700	100	100	90	--	--	--	80	90	100	70	--	--	--	--	--	--
1,000	120	120	90	--	--	--	90	100	120	--	--	--	--	--	--	--
2,500	180	180	--	--	--	--	--	--	220	--	--	--	--	--	--	--
5,000	240	250	--	--	--	--	--	--	--	--	--	--	--	--	--	--
10,000	300	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

KEY: N = Less than 50 cases reported.
"--" = not applicable

SOURCE: National Research Council

Table A-7. Approximate standard errors of estimated number of Asian doctoral scientists and engineers by field: 1991

Estimated number	Total	Sciences								Engineering						
		Total sciences	Physical science	Math science	Computer science	Environmental science	Life science	Psychology	Social science	Total engineering	Aeronautical/astronautical	Chemical	Civil	Electrical/electronic	Materials science	Mechanical
50	40	30	40	30	40	40	30	20	30	50	30	20	40	40	40	40
100	50	40	50	40	60	60	40	30	40	70	50	20	60	50	50	60
200	70	60	80	50	80	90	50	50	60	100	70	40	80	70	70	80
500	110	100	120	80	120	130	80	70	90	150	110	70	120	120	110	120
700	140	120	140	100	140	150	100	80	110	180	--	90	130	140	120	140
1,000	160	140	160	120	170	180	120	100	130	210	--	120	140	160	130	150
2,500	250	220	240	--	--	--	180	--	190	330	--	270	--	230	--	--
5,000	350	300	300	--	--	--	240	--	--	440	--	--	--	--	--	--
10,000	480	400	280	--	--	--	280	--	--	540	--	--	--	--	--	--
25,000	680	510	--	--	--	--	--	--	--	--	--	--	--	--	--	--

KEY: "--" = not applicable

SOURCE: National Research Council

Table A-8. Approximate standard errors for estimated percents of doctoral scientists and engineers: 1991

Base number of percent	1 or 99	2 or 98	5 or 95	10 or 90	15 or 85	25 or 75	50
50	6.5	9.2	14.3	19.7	23.4	28.4	32.8
100	4.6	6.5	10.1	13.9	16.5	20.1	23.2
200	3.3	4.6	7.1	9.8	11.7	14.2	16.4
500	2.1	2.9	4.5	6.2	7.4	9.0	10.4
700	1.7	2.5	3.8	5.3	6.3	7.6	8.8
1,000	1.5	2.1	3.2	4.4	5.2	6.3	7.3
2,500	0.9	1.3	2.0	2.8	3.3	4.0	4.6
5,000	0.7	0.9	1.4	2.0	2.3	2.8	3.3
10,000	0.5	0.6	1.0	1.4	1.7	2.0	2.3
25,000	0.3	0.4	0.6	0.9	1.0	1.3	1.5
50,000	0.2	0.3	0.5	0.6	0.7	0.9	1.0
75,000	0.2	0.2	0.4	0.5	0.6	0.7	0.8
100,000	0.1	0.2	0.3	0.4	0.5	0.6	0.7
150,000	0.1	0.2	0.3	0.4	0.4	0.5	0.6
200,000	0.1	0.1	0.2	0.3	0.4	0.4	0.5
250,000	0.1	0.1	0.2	0.3	0.3	0.4	0.5
300,000	0.1	0.1	0.2	0.3	0.3	0.4	0.4
400,000	0.1	0.1	0.2	0.2	0.3	0.3	0.4

SOURCE: National Research Council

Table A-9. Approximate standard errors for estimated percents of women scientists and engineers: 1991

Base number of percent	1 or 99	2 or 98	5 or 95	10 or 90	15 or 85	25 or 75	50
50	5.6	7.9	12.3	17.0	20.2	24.5	28.3
100	4.0	5.6	8.7	12.0	14.3	17.3	20.0
200	2.8	4.0	6.2	8.5	10.1	12.3	14.2
500	1.8	2.5	3.9	5.4	6.4	7.8	9.0
700	1.5	2.1	3.3	4.5	5.4	6.6	7.6
1,000	1.3	1.8	2.8	3.8	4.5	5.5	6.3
2,500	0.8	1.1	1.7	2.4	2.9	3.5	4.0
5,000	0.6	0.8	1.2	1.7	2.0	2.5	2.8
10,000	0.4	0.6	0.9	1.2	1.4	1.7	2.0
25,000	0.3	0.4	0.6	0.8	0.9	1.1	1.3
50,000	0.2	0.3	0.4	0.5	0.6	0.8	0.9
75,000	0.1	0.2	0.3	0.4	0.5	0.6	0.7

SOURCE: National Research Council

Table A-10. Approximate standard errors for estimated percents of black scientists and engineers: 1991

Base number of percent	1 or 99	2 or 98	5 or 95	10 or 90	15 or 85	25 or 75	50
50	5.4	7.6	11.9	16.3	19.4	23.6	27.2
100	3.8	5.4	8.4	11.5	13.7	16.7	19.2
200	2.7	3.8	5.9	8.2	9.7	11.8	13.6
500	1.7	2.4	3.7	5.2	6.1	7.4	8.6
700	1.4	2.0	3.2	4.4	5.2	6.3	7.3
1,000	1.2	1.7	2.7	3.6	4.3	5.3	6.1
2,500	0.8	1.1	1.7	2.3	2.7	3.3	3.8
5,000	0.5	0.8	1.2	1.6	1.9	2.4	2.7

SOURCE: National Research Council

Table A-11. Approximate standard errors for estimated percents of Asian scientists and engineers: 1991

Base number of percent	1 or 99	2 or 98	5 or 95	10 or 90	15 or 85	25 or 75	50
50	7.2	10.2	15.8	21.8	25.9	31.5	36.3
100	5.1	7.2	11.2	15.4	18.3	22.2	25.7
200	3.6	5.1	7.9	10.9	13.0	15.7	18.2
500	2.3	3.2	5.0	6.9	8.2	9.9	11.5
700	1.9	2.7	4.2	5.8	6.9	8.4	9.7
1,000	1.6	2.3	3.5	4.9	5.8	7.0	8.1
2,500	1.0	1.4	2.2	3.1	3.7	4.4	5.1
5,000	0.7	1.0	1.6	2.2	2.6	3.1	3.6
10,000	0.5	0.7	1.1	1.5	1.8	2.2	2.6
25,000	0.3	0.5	0.7	1.0	1.2	1.4	1.6

SOURCE: National Research Council

Appendix B.
Survey Questionnaire

OMB No. 3145-0020
Expires: 9-30-93

1991 SURVEY OF DOCTORAL SCIENTISTS AND ENGINEERS

A. First, we need to check that your name, address, Ph.D. institution, Ph.D. year, and date of birth are correct. If this information is inaccurate or missing, please provide the correct information in the box provided.

Write Corrections Here.

CONDUCTED BY THE NATIONAL RESEARCH COUNCIL WITH THE SUPPORT OF

THE NATIONAL SCIENCE FOUNDATION

THE NATIONAL INSTITUTES OF HEALTH

THE DEPARTMENT OF ENERGY

This information is solicited under the authority of the National Science Foundation Act of 1950, as amended. All information you provide will be treated as confidential, will be safeguarded in accordance with the provisions of the Privacy Act of 1974, and will be used for statistical purposes only. Individual records may be provided to the survey sponsors (listed above). Any other data released will be in the form of statistical summaries or in a form which does not identify information about any particular person. Your response is entirely voluntary and your failure to provide some or all of the requested information will in no way adversely affect you.

Public reporting burden for this collection of information is estimated to average 14 minutes per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Herman Fleming, National Science Foundation, 1800 G Street, NW, Washington, D.C., 20550; and to the Office of Management and Budget Paperwork Reduction Project (OMB No. 3145-0020), Washington, D.C., 20503.

EMPLOYMENT PROFILE

1. **During SEPTEMBER 1991, what was your employment status? (Please circle the number of your response below.)**

(CIRCLE ONE NUMBER)

1	Employed full-time	*Skip to Question 6 (Page 3)*
2	Employed part-time	*Go to Question 2*
3	Postdoctoral appointment*--Full-time	*Skip to Question 6 (Page 3)*
4	Postdoctoral appointment*--Part-time	*Go to Question 2*
5	Unemployed and seeking full-time or part-time employment	*Skip to Question 4*
6	Not employed and not seeking employment	*Skip to Question 5*
7	Retired and not employed	*Skip to Question 25a (Page 7)*
8	Other, specify (_____)	*Skip to Question 25a (Page 7)*

***Postdoctoral appointment is defined as a temporary appointment in academia, industry, or government, the primary purpose of which is to provide for continued education or experience in research.**

---

2. *IF YOU HELD A PART-TIME POSITION DURING SEPTEMBER 1991:*

   A. **Were you seeking a full-time position?** *(CIRCLE ONE NUMBER)*

   1 Yes
   2 No

   B. **How many part-time positions did you hold in September 1991?** *(ENTER NUMBER IN BOX)*

   ☐ Positions

   C. **On average, how many hours per week did you work in September 1991?** *(ENTER NUMBER IN BOX)*

   ☐☐ Hours

3. **What was your MOST important reason for holding a part-time position during September 1991?** *(CIRCLE ONLY ONE NUMBER)*

   1 Part-time position preferred
   2 Full-time position not available
   3 Family responsibilities
   4 Other, specify _____

   NOW, PLEASE SKIP TO QUESTION 6 (PAGE 3)

4. *IF YOU WERE UNEMPLOYED BUT SEEKING EMPLOYMENT DURING SEPTEMBER 1991:*

   Which of the following factors MOST restricted your job search? *(CIRCLE ONLY ONE NUMBER)*

   1 Geographic location
   2 Family responsibilities
   3 Need for part-time employment
   4 Other, specify _____
   5 No restrictions

   NOW, PLEASE SKIP TO QUESTION 16 (PAGE 6)

5. *IF YOU WERE NOT EMPLOYED AND NOT SEEKING WORK DURING SEPTEMBER 1991:*

   What was your MOST important reason for not seeking work? *(CIRCLE ONLY ONE NUMBER)*

   1 Temporarily absent for health or personal reasons
   2 Family responsibilities
   3 Suitable job not available
   4 Other, specify _____

   NOW, PLEASE SKIP TO QUESTION 16 (PAGE 6)

6. Please write the name of your principal employer (company, organization, postdoctoral institution, etc.) and actual place of employment during SEPTEMBER 1991.

(IF YOU WERE SELF-EMPLOYED, WRITE "SELF")

Name of employer

City County

State or Foreign Country ZIP

7. Which category best describes the type of your principal employment OR postdoctoral appointment during SEPTEMBER 1991? *(CIRCLE ONLY ONE)*

00 Self-employed → *Go to Q. 8*
01 Business or industry → *Go to Q. 8*
02 Junior college, 2-year college, technical institute
03 Medical school (including university affiliated hospital or medical center)
04 4-year college
05 University, other than medical school
06 Elementary, middle, or secondary school system
07 Private foundation
08 Hospital or clinic
09 U.S. military service, active duty, or Commissioned Corps, e.g., USPHS, NOAA
10 U.S. government, civilian employee
11 State government
12 Local or other government, specify _____
13 Nonprofit organization, other than those listed above
14 Other, specify _____

Skip to Q. 9 (Page 4)

8. *IF YOU ANSWERED CODE 01 OR 00 TO QUESTION 7 (EMPLOYED IN BUSINESS/INDUSTRY OR SELF-EMPLOYED):*

From the Business/Industry Classification List in the next column, how would you classify the organization you wrote in question 6?
If your organization conducts its activities at different locations, enter the code for the activity conducted at the location where you were employed.

☐☐ Business/Industry Classification Code
(See next column for listing)

BUSINESS/INDUSTRY CLASSIFICATION LIST
(FOR USE IN ANSWERING QUESTION 8)

MANUFACTURING
01 Primary metals products
02 Fabricated metals products
03 Computers and computing equipment
04 Nonelectrical machinery (including engines & turbines, construction machinery, metal working, and industrial machinery; and excluding computing and computing equipment)

Electrical equipment
05 Household appliances (excluding radios and televisions)
06 Radios and televisions
07 Communications equipment
08 Other electrical equipment (including electric motors, transmissions equipment, and generators)

Transportation equipment
09 Aircraft, aircraft engines and parts
10 Motor vehicles and equipment
11 Guided missiles and space vehicles and parts
12 Other transportation equipment (including railroad and parts)
13 Ordnance (including arms manufacture and ammunition)
14 Professional and scientific instruments

Chemical and allied products
15 Drugs and pharmaceuticals
16 Other chemicals and allied products
17 Petroleum and coal products (including petroleum refining)
18 Printing and publishing (including software publishing)
19 Other manufacturing

20 **CONSTRUCTION**

MINING AND PETROLEUM EXTRACTION
21 Coal mining
22 Petroleum and gas extraction
23 Other mining

TRANSPORTATION, COMMUNICATION, AND UTILITIES
24 Transportation
25 Communications
26 Utilities and sanitary services

WHOLESALE AND RETAIL TRADE
27 Wholesale trade
28 Retail trade

29 **FINANCE, INSURANCE, AND REAL ESTATE**

SERVICES
30 Computer and data processing services
31 Engineering, architectural, and surveying services
32 Other services

40 **OTHER**

9. **From the Employment Specialties List on page 5, select and enter both the number and the title of the employment field most closely related to your principal employment or postdoctoral appointment during SEPTEMBER 1991. Write in your employment field if it is not on the list.**

☐☐☐ Number

_____ Employment Field (See page 5 for listing)

10. *IF YOU ANSWERED CODES 800-938 TO QUESTION 9 (EMPLOYED IN A HUMANITIES, EDUCATION, PROFESSIONAL , OR OTHER FIELD):*

What was the MOST important reason for your decision to take a position in a field other than science/engineering? *(CIRCLE ONLY ONE)*

1 Better pay
2 More attractive career options
3 Preferred specific geographic location
4 Constraints due to family status
5 Position in Ph.D. field not available
6 Change in career/professional interests
7 Other, specify _____

11. *IF YOU WERE EMPLOYED BY AN INSTITUTION OF HIGHER EDUCATION (THAT IS, YOU CIRCLED CODES 02-05 TO QUESTION 7):*

A. **What was your faculty rank?** *(CIRCLE ONLY ONE)*

1 Professor
2 Associate professor
3 Assistant professor
4 Instructor
5 Lecturer
6 Adjunct faculty
7 Other, specify _____
8 Does not apply

B. **What was your tenure status?** *(CIRCLE ONLY ONE)*

1 Tenured, in 19☐☐
2 Not tenured, in tenure track
3 Not tenured, not in tenure track
4 Tenure not applicable

12. **From the activities listed below, select your primary and secondary work activities for your principal job (as reported in question 6), in terms of time devoted during a typical week.**

ENTER THE APPROPRIATE CODE (01-16) FOR EACH IN THE BOXES PROVIDED.

☐☐ Primary activity ☐☐ Secondary activity

01 Teaching
02 Basic research (i.e., study directed toward gaining scientific knowledge primarily for its own sake)
03 Applied research (i.e., study directed toward gaining scientific knowledge in an effort to meet a recognized need)
04 Development of equipment, products, systems
05 Design of equipment, processes, models
06 Management/administration of R&D
07 Management/administration of educational/other programs
08 Report and technical writing, editing
09 Professional service to individuals, clinical diagnosis, psychotherapy
10 Consulting
11 Operations-production, maintenance, construction, installation
12 Quality control, testing, evaluation
13 Sales, marketing, purchasing, customer and public relations
14 Statistical work-survey work, forecasting, statistical analysis
15 Computer applications
16 Other, specify _____

13. **During a typical week, what percentage of your professional work time did you devote to the items listed in question 12?**
ENTRIES SHOULD TOTAL 100%

PERCENT OF TIME

_____ % Primary work activity

_____ % Secondary work activity

_____ % Other work activities

100% = TOTAL

PLEASE CONTINUE ON PAGE 6

EMPLOYMENT SPECIALTIES LIST
(FOR USE IN ANSWERING QUESTION 9)

MATHEMATICAL SCIENCES

000 - Algebra
010 - Analysis & Functional Analysis
085 - Applied Mathematics
089 - Combinatorics & Finite Mathematics
020 - Geometry
030 - Logic (see also 834)
055 - Math Statistics (see also 544, 670, 725, 727)
040 - Number Theory
082 - Operations Research (see also 478)
052 - Probability
060 - Topology
098 - Mathematics, General
099 - Mathematics, Other*

COMPUTER AND INFORMATION SCIENCES

073 - Hardware Systems
081 - Information Sci. & Systems*
074 - Intelligent Systems
072 - Software Systems
075 - Systems Analysis
071 - Theory
079 - Computer Sciences, Other* (see also 437, 476)

PHYSICS & ASTRONOMY

132 - Acoustics
101 - Astronomy
102 - Astrophysics
110 - Atomic & Molecular
120 - Electromagnetism
140 - Elementary Particles
134 - Fluids
150 - Nuclear Structure
136 - Optics
135 - Plasma
157 - Polymer
160 - Solid State
198 - Physics, General
199 - Physics, Other*

CHEMISTRY

260 - Agricultural & Food
200 - Analytical
280 - Biochemistry (see also 540)
210 - Inorganic
230 - Nuclear
220 - Organic
270 - Pharmaceutical
240 - Physical
275 - Polymer
255 - Structural
215 - Synthetic Inorganic & Organometallic
225 - Synthetic Organic & Natural Products
250 - Theoretical
298 - Chemistry, General
299 - Chemistry, Other*

EARTH, ENVIRONMENTAL, AND MARINE SCIENCES

382 - Atmospheric Dynamics
381 - Atmospheric Physics & Chemistry
383 - Atmos. & Meteorol. Sci., Other*
393 - Economic Geology
392 - Engineering Geology
305 - Geochemistry
350 - Geomorph. & Glacial Geology
341 - Geophysics (Solid Earth)
301 - Mineralogy, Petrology
320 - Paleontology
394 - Petroleum Geology
310 - Stratigraphy, Sedimentation
330 - Structural Geology
398 - Earth Sciences, General
399 - Earth Sciences, Other*
360 - Hydrology & Water Resources
370 - Oceanography
397 - Marine Sciences, Other*
388 - Environmental Sciences, General (see also 480, 528)
389 - Environmental Sciences, Other*

ENGINEERING

400 - Aerospace, Aeronautical & Astronautical
410 - Agricultural
415 - Bioengineering & Biomedical
435 - Ceramic
430 - Chemical
420 - Civil
436 - Communications
437 - Computer (see also 071-081)
440 - Electrical
445 - Electronics
460 - Engineering Mechanics
465 - Engineering Physics
479 - Fuel Technology & Petroleum
450 - Industrial & Manufacturing
497 - Materials Science & Engineering
470 - Mechanical
475 - Metallurgical & Phys. Met. Engr.
486 - Mining & Mineral
485 - Naval Arch. & Marine Engr.
455 - Nuclear
487 - Ocean
478 - Operations Research (see also 082)
490 - Polymer
480 - Sanitary & Environmental Health
476 - Systems Design & Systems Science (see also 072, 073, 074)
498 - Engineering, General
499 - Engineering, Other*

AGRICULTURAL SCIENCES

501 - Agricultural Economics
500 - Agronomy
508 - Animal Breeding & Genetics
509 - Animal Nutrition
512 - Animal Sciences, Other*
51A - Dairy Sciences
515 - Fisheries Sciences
503 - Food Science and/or Technology (see also 573)
505 - Forestry
506 - Horticulture
513 - Plant Breeding & Genetics
511 - Plant Path. (see also 553)
514 - Plant Sciences, Other*
51B - Poultry Sciences
507 - Soil Sciences
516 - Wildlife Management
518 - Agriculture, General
519 - Agriculture, Other*

MEDICAL SCIENCES

532 - Animal Pathology
530 - Audiology & Speech Pathology
528 - Environmental Health
524 - Hospital Administration
533 - Human Pathology
520 - Medicine & Surgery
526 - Nursing
527 - Parasitology
536 - Pharmacology
537 - Pharmacy
522 - Public Health & Epidemiology
523 - Veterinary Medicine
538 - Medical Sciences, General
539 - Medical Sciences, Other*

BIOLOGICAL SCIENCES

545 - Anatomy
556 - Animal Genetics
558 - Animal Physiology
551 - Bacteriology
574 - Behavior/Ethology
540 - Biochemistry (see also 280)
544 - Biometrics & Biostatistics (see also 055, 670, 725, 727)
542 - Biophysics
550 - Botany
546 - Cell Biology
560 - Ecology
547 - Embryology
549 - Endocrinology
571 - Entomology
573 - Food Science and/or Technology (see also 503)
557 - Human Genetics
559 - Human Physiology
548 - Immunology
575 - Microbiology
572 - Molecular Biology
589 - Neurosciences
576 - Nutrition & Dietetics
552 - Plant Genetics
553 - Plant Path. (see also 511)
567 - Plant Physiology
590 - Toxicology
569 - Zoology
598 - Biological Sciences, General
599 - Biological Sciences, Other*

PSYCHOLOGY

600 - Clinical
603 - Cognitive
642 - Comparative
610 - Counseling & Guidance
620 - Developmental & Gerontological
630 - Educational
641 - Experimental
650 - Industrial/Organizational
660 - Personality
643 - Physiological
670 - Psychometrics (see also 055, 544, 725, 727)
675 - Quantitative
635 - School
680 - Social
698 - Psychology, General
699 - Psychology, Other*

SOCIAL SCIENCES

700 - Anthropology
703 - Archeology
745 - Area Studies*
708 - Communications
760 - Criminology & Criminal Justice
730 - Demography
725 - Econometrics (see also 055, 544, 670, 727)
720 - Economics
740 - Geography
775 - History & Philosophy of Sci.
755 - International Relations
709 - Linguistics
751 - Political Sci. & Government
752 - Public Administration
753 - Public Policy Studies
727 - Social Statistics (see also 055, 544, 670, 725)
710 - Sociology
770 - Urban & Regional Planning
798 - Social Sciences, General
799 - Social Sciences, Other*

HUMANITIES

811 - American Literature
827 - Classics
836 - Comparative Literature
813 - English Language
814 - English Literature
823 - French
821 - German
826 - Italian
822 - Russian
824 - Spanish & Portuguese
829 - Languages, Other*
839 - Letters, Other*

804 - History, American
805 - History, European
806 - History, Other*

808 - American Studies
802 - Art History & Criticism
830 - Music
834 - Philosophy (see also 030)
833 - Religious Studies (see also 881)
831 - Speech & Debate
809 - Theatre & Theatre Criticism
878 - Humanities, General
879 - Humanities, Other*

EDUCATION AND PROFESSIONAL FIELDS

801 - Applied Art
888 - Architec. & Environ. Design
882 - Business & Management
883 - Home Economics
884 - Journalism
886 - Law, Jurisprudence
891 - Library & Archival Sciences
887 - Social Work
881 - Theology (see also 833)
896 - Professional Fields, General
897 - Professional Fields, Other*

938 - Education (other than teaching in a field listed above)

899 - Other Fields*

*Identify the specific field in the space provided in #9 on the questionnaire.

92 BEST COPY AVAILABLE

14. What was the basic annual salary associated with your principal employment during SEPTEMBER 1991? By basic salary we mean your annual salary before deduction for income tax, social security, retirement, etc., but do not include bonuses, overtime, summer teaching, or other payment for professional work.

If you were on a postdoctoral appointment (see question 1 for definition), what was your stipend plus allowances?

$_____.00 Basic Annual Salary

15. Circle whether this salary was for:

1 9-10 months
2 11-12 months

16. Since receiving your doctorate, how many full-time equivalent (FTE) years of professional work experience have you had?

☐☐ Year(s)

17a. Was any of the work in which you were engaged during the past year supported or sponsored by U.S. Government funds?

1 Yes
2 No → *Skip to Question 18a*
3 Don't know → *Skip to Question 18a*

17b. If YES, which of these agencies or departments were supporting your work? *(CIRCLE ALL THAT APPLY)*

01 AID (Agency for International Development)
02 Department of Agriculture
03 Department of Commerce
04 Department of Defense
05 Department of Energy
06 Department of Education
07 National Institutes of Health (DHHS)
08 Other DHHS
09 Department of Housing and Urban Development
10 Department of the Interior
11 Department of Justice
12 Department of Labor
13 Department of Transportation
14 EPA (Environmental Protection Agency)
15 NASA (National Aeronautics and Space Administration)
16 NSF (National Science Foundation)
17 Nuclear Regulatory Commission
18 Other, specify _____
19 Don't know source agency

18a. Since you received your doctorate, have you ever spent three months or more conducting research in a country other than the United States?

1 Yes → *Skip to Question 19*
2 No

18b. If NO, from the list below, select the primary and secondary factors that would encourage you to conduct research in a country other than the United States.
(ENTER NUMBER IN THE BOXES PROVIDED)

☐ Primary factor ☐ Secondary factor

1 Better sabbatical leave policy
2 More financial support
3 Better foreign language training opportunities
4 Greater access to information on foreign research opportunities (e.g. funding sources, research activities)
5 Other, specify _____
6 I would not consider conducting research outside the United States at this time.

19. From this list of selected areas of national interest, indicate the ONE area to which you devoted the MOST professional time during a typical week at the job reported in question 6.
(CIRCLE ONLY ONE)

01 Energy and fuel
02 Health
03 Environment
04 Education
05 National defense
06 Food or Agriculture
07 Biotechnology
08 Mineral resources
09 Housing (planning, design, construction)
11 Transportation
12 Communications
13 Space
14 Other, specify _____

20. What percent of your professional time did you devote to the area listed in question 19 during a typical week?

_____ Percent

21. PLEASE READ BEFORE CONTINUING:
If you answered code 01 to question 19 (energy and fuel), please answer questions 22-24. Otherwise, please skip to question 25a.

22. From the list below, circle the ONE energy source that involved the LARGEST proportion of your energy-related work during SEPTEMBER 1991.
(CIRCLE ONLY ONE)

1 Coal and coal products
2 Petroleum (including oil shale and tar sands) or natural gas
3 Fission
4 Fusion
5 Hydroenergy
6 Direct solar (including space and water heating, thermal, electric)
7 Indirect solar (winds, tides, biomass, etc.)
8 Geothermal
9 Other, specify _____

23. Please read the following list of energy-related activities and mark the activity(ies) in which you were engaged during SEPTEMBER 1991.
(CIRCLE ALL THAT APPLY)

01 Exploration
02 Extraction (gas, oil, mining)
03 Manufacture of energy-related components or products
04 Fuel processing (including refining and enriching)
05 Electric power generation
06 Transportation, transmission, distribution of fuel or energy
07 Energy storage
08 Energy utilization, management
09 Fuel reprocessing or disposal
10 Energy conservation
11 Environmental impact (health, economic, etc.)
12 Education, training
13 Research and development
14 Other, specify _____

24. Please enter the number (01-14) from question 23 that BEST describes the activity in which you spent MOST of your energy-related time.

☐☐ Number

GENERAL INFORMATION

25a. What is your citizenship status?
(CIRCLE ONLY ONE)

1 U.S. Native Born
2 U.S. Naturalized
→ *Skip to Question 26*
3 Non-U.S. Immigrant (Permanent Resident)
4 Non-U.S. Non-Immigrant (Temporary Resident)
5 Non-U.S. with no U.S. residency or citizenship

25b. If NON-U.S., of which country are you a citizen?

_____

26. What is your racial background?
(CIRCLE ONLY ONE)

1 American Indian or Alaskan Native
2 Asian or Pacific Islander
3 Black
4 White

27a. Is your ethnic heritage Hispanic?

1 Yes
2 No → *Skip to Question 28*

27b. If YES, is it: *(CIRCLE ONLY ONE)*

1 Mexican American
2 Puerto Rican
3 Other Hispanic

28. What is your marital status? *(CIRCLE ONLY ONE)*

1 Never Married
2 Married
3 Separated, Divorced
4 Widowed

29. How many children do you have living with you in each of the following age categories:
(ENTER NUMBER, IF NONE, WRITE "0".)

Number ☐ Under 6 years of age

Number ☐ Between 6 to 17 years of age

GENERAL INFORMATION (CONTINUED)

30. What is the usual degree of difficulty you have with seeing words or letters in ordinary newsprint (while wearing glasses or contact lenses if you usually wear them)? *(CIRCLE ONLY ONE)*

1 No Difficulty
2 Slight Difficulty
3 Moderate Difficulty
4 Severe Difficulty
5 Unable to do

31. What is the usual degree of difficulty you have with hearing what is normally said in a conversation with another person (while wearing a hearing aid if you usually wear one)? *(CIRCLE ONLY ONE)*

1 No Difficulty
2 Slight Difficulty
3 Moderate Difficulty
4 Severe Difficulty
5 Unable to do

32. What is the usual degree of difficulty you have with walking without assistance (human or mechanical) or using stairs? *(CIRCLE ONLY ONE)*

1 No Difficulty
2 Slight Difficulty
3 Moderate Difficulty
4 Severe Difficulty
5 Unable to do

33. What is the usual degree of difficulty you have with lifting and carrying something as heavy as 10 pounds, such as a bag of groceries? *(CIRCLE ONLY ONE)*

1 No Difficulty
2 Slight Difficulty
3 Moderate Difficulty
4 Severe Difficulty
5 Unable to do

34. In the event it is necessary to contact you to clarify some of the information you provided, what is the telephone number at which you can be reached?

Daytime: _____
(Area code) (Number)

Evenings: _____
(Area code) (Number)

35. Because of recent and continuing changes in domestic and world employment markets, policymakers are interested about employment opportunities and career paths of the doctoral population.

Consequently, we may be recontacting you in 1993. In case we cannot locate you then, please provide the name, address, and telephone number of a person who is likely to know where you can be reached. *DO NOT INCLUDE SOMEONE WHO LIVES IN YOUR HOUSEHOLD.*

_____
Name

_____
Number and street

_____
City or town

_____
State or foreign country Zip code

_____
(Area code) (Number)

THANK YOU FOR YOUR PARTICIPATION. PLEASE RETURN THE COMPLETED QUESTIONNAIRE IN THE ENCLOSED POSTAGE PAID ENVELOPE TO THE:

NATIONAL RESEARCH COUNCIL
ROOM GR 415
2101 CONSTITUTION AVENUE, N.W.
WASHINGTON, D.C. 20418

NSF Division of Science Resources Studies **NSF 94-307**

Order Form

Please send me the following reports:

Title	NSF No.	
Science and Engineering Degrees, by Race/Ethnicity of Recipients: 1977-91	94-306	☐
Blacks in Undergraduate S&E Education	92-305	☐
Selected Data on Graduate Students and Postdoctorates in Science and Engineering: Fall 1992	94-301	☐
Science and Engineering Doctorates: 1960-91	93-301	☐
Selected Data on Science and Engineering Doctorate Awards: 1992	93-315	☐
Undergraduate Origins of S&E Doctorates	92-332	☐

Check here to get SRS *Publications List: FY1989-93.* ☐

Name	
Address	
City	
State	Zip
Phone	Fax

To order SRS publications, fill out order form, cut on dotted line, fold in half, tape, and drop in the mail. No postage is necessary.

NATIONAL SCIENCE FOUNDATION
ARLINGTON, VA 22230

OFFICIAL BUSINESS

PENALTY FOR PRIVATE USE $300

NO POSTAGE
NECESSARY
IF MAILED
IN THE
UNITED STATES

BUSINESS REPLY CARD

FIRST CLASS PERMIT NO. 12806 ARLINGTON, VA

National Science Foundation
Division of Science Resources Studies
Publications Unit
4201 Wilson Blvd., Suite 965
Arlington, VA 22203-9966

Fold here

Please tape here (do not staple)

NATIONAL SCIENCE FOUNDATION
ARLINGTON, VA 22230

OFFICIAL BUSINESS
PENALTY FOR PRIVATE USE $300

RETURN THIS COVER SHEET TO ROOM P35 IF YOU DO NOT WISH TO RECEIVE THIS MATERIAL ☐, OR IF CHANGE OF ADDRESS IS NEEDED ☐, INDICATE CHANGE INCLUDING ZIP CODE ON THE LABEL (DO NOT REMOVE LABEL).

BULK RATE
POSTAGE & FEES PAID
National Science Foundation
Permit No. G-69

00167149 M15505
GAIL MESSINEO
ERIC/CSMEE
1929 KENNY ROAD
COLUMBUS OH 43210-1080